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Politics this year

Dec 20th 2001
From The Economist print edition

Attack on America

AP

In the biggest terrorist attack the world has seen, hijackers on **September 11th** seized control of four American internal flights. Two planes were flown into the twin towers of the World Trade Centre in New York, causing both to collapse. A third aircraft struck the Pentagon in Washington, DC, and the fourth crashed in Pennsylvania after passengers resisted. The official death toll is around 3,500.

See article: The day the world changed

Osama bin Laden and his al-Qaeda network, based in Afghanistan, were immediately named as prime suspects. President George Bush declared a “war against terrorism” and set about mustering international support for action against Afghanistan's Taliban rulers, who had refused to hand over Mr bin Laden. Heavy bombing by American forces, assisted by the Tajik-Uzbek Northern Alliance, routed the Taliban in most of the country. Mr bin Laden's whereabouts, however, remained unclear, as did the state of al-Qaeda.

See article: Trying to finish Afghanistan's war

Bush's America

To the dismay of some of America's allies, **George Bush's** administration started on a decidedly independent path, opting out of the Kyoto accord on global warming with casual rudeness, shunning several other international bodies, and announcing its intention to withdraw from the Anti-Ballistic Missile treaty with Russia, in order to pursue the dream of building a missile defence shield.

See article: The Kyoto Protocol is nearly dead

The first human embryo was **cloned** by a previously obscure Massachusetts firm called Advanced Cell Technology, which hoped to derive stem cells from it (the embryo did not survive long enough). The breakthrough was met with calls to ban reproductive cloning. After much soul-searching, Mr Bush did allow public money for other forms of stem-cell research.

See article: Storm in a test tube

Mr Bush pushed through the **biggest tax cut ever**, returning $1.3 trillion to taxpayers over the next 11 years. Since then, he has had to admit that, after several years of surplus, the government will run fiscal deficits for the remainder of his term.

See article: America's economy

Five people died in America after coming into contact with **anthrax-laced letters** sent to politicians and the media. Though Osama bin Laden was suspected at first, it came to look like the work of a domestic terrorist.

See article: Another anthrax victim

Timothy McVeigh, who murdered 168 people in Oklahoma City in 1995, was executed.

See article: Timothy McVeigh's execution

No rest from violence

The violence of the **Israeli-Palestinian conflict** increased as hope of a political solution dissolved. The Palestinian *intifada*, and Israel's response, killed over 1,000 people, three-quarters of them Palestinian, and devastated the Palestinian economy. At the year's end, Yasser Arafat, responding to outside pressure, called for an end to the armed struggle. But Ariel Sharon's government stuck by its belief that failure to stop the violence had rendered Mr Arafat and his Palestinian Authority irrelevant.

See article: Ariel Sharon's post-Arafat strategy

Zimbabwe's opposition supporters were arrested, had their homes razed and were sometimes killed; commercial farmers had their land seized; and the economy was ruined, as Robert Mugabe continued his campaign to hold on to power after a presidential election in March 2002.

See article: Preparing for Zimbabwe

A **civil war** that has brutalised Angola since the 1970s continued. In Congo, there was some improvement after Joseph Kabila succeeded his murdered father, but the conflict drifted on despite peace talks. Uganda and Rwanda faced up to each other, threateningly. Ethnic and religious clashes resulted in many Nigerian deaths. In Sierra Leone, a brutal war quietened down.

See article: Hope for the heart of Africa

AIDS killed 2.3m Africans in 2001. Worldwide, 5m people contracted HIV, the virus that causes AIDS, of whom 3.4m were African. HIV or AIDS now afflicts some 40m people.

See article: Unhappy anniversary

Argentina in crisis

Recession turned to slump in **Argentina**, after the government imposed budget cuts and then bank controls as it battled against default on its $135 billion public debt and to retain its fixed exchange rate.

See article: Argentina's economic crisis

Democracy was restored in **Peru** after the corrupt and authoritarian rule of Alberto Fujimori. The voters chose Alejandro Toledo, a former shoe-shine boy and Harvard-educated economist of Indian blood, as their new president.

See article: The tasks awaiting Alejandro Toledo

In **Colombia**, killing (much of it by right-wing paramilitary vigilantes) and kidnapping continued. But talks this month raised hopes that the ELN, the smaller of the two leftist guerrilla armies, might call a ceasefire next year.

See article: Drugs, war and democracy

Japan's reformer?

AP

To general surprise, Junichiro Koizumi, billed as a reformer and a maverick, became prime minister of **Japan** after his hapless predecessor, Yoshiro Mori, resigned. Mr Koizumi then led the Liberal Democrats to victory in an election to Japan's Upper House.

See article: Japan's election and its economy

A popular uprising, backed by the armed forces, drove Joseph Estrada from power in the **Philippines**. Parliamentarians in **Indonesia** voted Abdurrahman Wahid out of the presidency there.

See article: Will Wahid be next?

John Howard's Liberal Party won an unexpected election victory in **Australia**. The People's Action Party won an expected one in **Singapore**. In **Sri Lanka**, President Chandrika Kumaratunga lost her parliamentary majority.

See article: Three more years for John Howard

After 15 years of negotiating, **China** joined the World Trade Organisation. So did **Taiwan**, where the party led by President Chen Shui-bian humbled the long-ruling Kuomintang.

See article: Celebration and concern for China's economy

Tension continued between India and Pakistan over **Kashmir**. A ceasefire was called off by India: groups based in Pakistan were accused by India of atrocities at the Parliament buildings in Srinagar and in Delhi. But General Pervez Musharraf, who declared himself president of Pakistan, found his dictatorial status no longer worried the West after he joined America's war against terrorism.

See article: Who will strike first?

New Labour, new term

Britain's voters gave Tony Blair and his Labour Party a huge fresh majority. The opposition Conservative Party picked a little-known new leader, which did not improve its popularity.

See article: Labour's election victory

Despite clouds of scandal and of worry about combining business and government power, **Italy's** controversial tycoon, Silvio Berlusconi, and his Forza Italia-led alliance won office in a general election. The clouds remained.

See article: Berlusconi's bumpy start

In **Spain**, the Basque-separatist terrorists of ETA continued killing. But in a regional election the non-violent Basque-nationalist PNV party was returned to power.

See article: Spain's Basque election

The voters threw out two of Scandinavia's three centre-left governments—in **Norway** and **Denmark**.

See article: A setback for Norway

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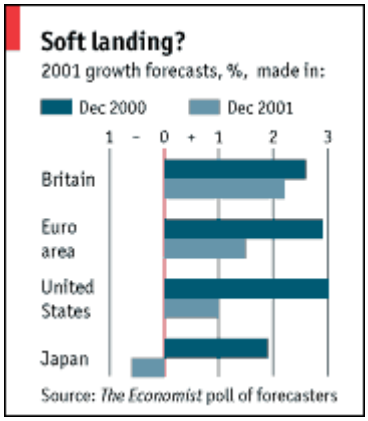
Business this year

Dec 20th 2001
From The Economist print edition

Economic woes



The **world economy** suffered a worse-than-expected downturn. Since December 2000, *The Economist*'s panel of forecasters has lowered its estimates of GDP growth almost everywhere. America and Japan fell into recession in 2001; so did Germany. Among G7 rich countries, Britain weathered the year best.

See article: The risk of world recession

World **stockmarkets** continued a sedate decline until hit by September 11th. That triggered a sharp fall followed by a rally as hopes grew of an early economic recovery. Slashed interest rates and cheaper oil made that plausible; weak investment and high consumer debts raised doubts. Mexico and some Central European markets were steadier; Russia soared.

See article: World stockmarkets

World leaders agreed after long negotiation in Doha to launch a new **trade round**.

See article: The Doha round

Industrial decline

The world **airline industry** split into two. Mainstream carriers were all heading for record losses even before September 11th slashed traffic by 25%. But no-frills, low-fare carriers such as Southwest in America and Ryanair and easyJet in Europe prospered.

See article: The aviation aftershocks from September 11th

The wheels came off the **car industry**. Ford fired its chief executive, Jacques Nasser. Volkswagen named Bernd Pischetsrieder its new boss. DaimlerChrysler's woes continued in America; General Motors, Ford and Fiat retrenched in Europe.

See article: America's car industry

Steel producers continued to be plagued by inefficiency and overcapacity, as prices slipped to 20-year lows. Two of America's biggest producers, LTV and Bethlehem Steel, filed for bankruptcy. Their plight moved America's government to threaten tariffs of up to 40% on steel imports. That, said the EU, would spark a trade war.

See article: US steel producers talk mergers

The European Commission blocked the **biggest-ever industrial merger**, between two American giants, General Electric and Honeywell. Americans were infuriated and aghast that the deal, already approved at home, could be thwarted in Europe.

See article: Mario Monti, Europe's fearless diplomat

Enron, a once high-flying American energy trader, fell to earth amid questions over its off-balance-sheet debts and murky accounts. Its collapse, the biggest bankruptcy in American history, triggered multi-million-dollar lawsuits against the company, its executives and its auditors.

See article: Auditors under fire

Judging technology

Microsoft appealed against a judgment ordering it to be split in two for acting as an illegal monopolist. The appeals court rejected the break-up, but upheld the finding that Microsoft had broken the law. A new judge ordered Microsoft's opponents to propose alternative punishment. Some of Microsoft's foes, including America's Department of Justice and nine states, agreed a settlement. But nine states refused to go along with it.

See article: The Microsoft settlement

Hewlett-Packard and **Compaq**, two computer makers, announced their intention to merge. The plan was widely criticised, not least by the Hewlett and Packard families, who said they would oppose the deal. Carly Fiorina, HP's chief executive, said she would press ahead regardless.

See article: Can the HP-Compaq deal be saved?

France's Vivendi, the least exposed of the **media giants** to the world advertising slump, continued an American shopping spree. Gerald Levin, architect of the merger of Time Warner and AOL and the combined group's chief executive, annnounced that he would resign in 2002. Rupert Murdoch failed to get his hands on DirecTV and so a significant satellite-TV presence in America. The company fell instead to EchoStar, though the deal awaits regulatory approval.

See article: Media and the economic downturn

Tough for banks

It was a tough year for **investment banks,** as a sharp decline in merger activity, initial public offerings and share-trading volumes hit profits. Commercial banks used their huge balance sheets to offer cut-price loans to companies in return for securing investment-banking mandates. If this continues, the pure investment banks may struggle to stay independent. As profits fell, many bankers lost their jobs; bonuses on Wall Street are expected to be 30% down from a year ago.

See article: Investment banking

The terrorist attacks on September 11th led to the biggest losses ever in **insurance** and reinsurance. Terrorism became the risk that no insurer wanted. France is set to launch a reinsurance scheme like Britain's government-backed, mutually owned firm that reinsures terrorist risk. America is shying away from a similar permanent role.

See article: The biggest bill of all

It was a year of problems, and promise, for the **drug industry**. Blockbusters, such as Eli Lilly's Prozac, went off-patent and drug makers came under public pressure to soften their stance on drug pricing and patent enforcement in poor countries. But fears of bioterrorism gave drug firms a new, and potentially lucrative, role in national defence.

See article: The pharmaceutical industry is in good shape

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Fighting terrorism

The patient accumulation of successes

Dec 20th 2001
From The Economist print edition

Their military achievements in Afghanistan should make Americans proud, and the world optimistic

AP

Get article background

THE fight is not over. It is not even, in truth, nearly over. Nevertheless, as this grim year comes to its close, it can be said that the fight against international terrorism has proceeded uncommonly well since its terrible origin on September 11th. Along with the Taliban and al-Qaeda armies in Afghanistan, the armchair critics in the West have been routed. American troops have not suffered the humiliation meted out to the Soviet Union in the 1980s. Bombing did not prove pointless or reckless. There has been no “humanitarian disaster”. Other Islamic countries, notably Pakistan, the Gulf states and Egypt, have not erupted in popular fury against the West. Americans have not “lashed out”, and nor have they been “arrogant” or “triumphalist”. Instead they have been sober, well-organised, well-supported, determined and remarkably successful.

They needed to be, and they now need to continue to be. As President George Bush said in his televised address on October 7th, the military action which began on that day was just one front in a wider war of diplomacy, intelligence, financial controls and other measures, extending across many countries. And, “given the nature and reach of our enemies,” it needs to be won, he said, “by the patient accumulation of successes,” not simply by one whizz-bang intervention. Sure enough, successes have been piling up, one by one.

Some armchair critics may still retort that the whizz-bang intervention has yet to achieve its ultimate aim, that of capturing or killing Osama bin Laden and other senior al-Qaeda leaders. That is true—at least, it seemed to be when *The Economist* went to press—but it just makes President Bush's point. Wherever Mr bin Laden is, and whether he is dead or alive, the danger of further terrible acts will endure. Al-Qaeda still has supporters in many places. What it now lacks is a home base, an infrastructure and its previous sense of impunity. That does not mean that it cannot strike again, nor that another network cannot rise to emulate it, exploiting the same sentiments among potential recruits. The fight will go on.

A double-edged superiority

The pattern of events so far will nevertheless help to shape that future campaign. In military terms, they are sobering and reassuring for more or less the same reason: America's overwhelming military superiority. The sobering point is that such clear superiority leads hostile groups to blame America for their ills and then to seek unconventional means of hurting it, such as suicidal terrorism or the use of nuclear, chemical or biological weapons. The reassuring point is that, when it chooses to fight back against such groups, America is highly likely to succeed. And although some innocent lives will always be lost when it does, its technology and discipline have proved good enough to keep the numbers low.

In Afghanistan, where the opponents were poorly armed and equipped but were operating in dangerous terrain, that point has been assisted by another encouraging fact: that for all the hatred for America that supposedly dwells around the globe, many more people feel inclined to work on America's side than against it. This reflects opportunism and realpolitik as well as trust and sympathy. In Afghanistan, a fractious place over which the Taliban never had a secure hold, groups galore wanted to ally themselves to American power and money. Around its borders, many countries also had an eye for the main chance

but they also knew, when choosing between America and the Taliban and al-Qaeda, which would be a more trustworthy ally. Around the world, the same held true, given added piquancy by the fear that others, too, could in future become the target of such mega-terrorism.

Proof of American military success and its willingness to act overseas may now offer both deterrence and encouragement: deterrence, to other states that might have considered sheltering or supporting anti-American terrorists; encouragement, to groups within terror-supporting countries who would like to oppose such acts or change their regimes. Too much should not be made of this: Afghanistan is but one country in one very particular set of circumstances, which turned out to be favourable to the American effort rather than a quagmire for it. Still, it is recent and striking, and will for a while be uppermost in many people's minds.

Humble but strong

Another point, though, should be uppermost in Americans' minds. Many said, after the attacks on the World Trade Centre and the Pentagon, that such acts showed both that America was vulnerable and that it could not pretend to detach itself from the world. It could not be unilateralist, or worse still isolationist. The real lesson is subtler than that. Certainly, America is engaged in the world whether it likes it or not. But the terms of its engagement have to vary according to the place and the topic. As Afghanistan has shown, it can (and often should) be unilateralist in military matters, but it needs a more co-operative, even consensual approach for other purposes, including diplomacy, intelligence-gathering, financial tracking and above all in the battle for hearts, minds and ideas. And half-hearted engagement, whether uni- or any other lateral, can leave the worst problems of all.

That, in essence, is where America found itself on September 12th, in the Middle East and the wider Islamic world. Its actions were not the cause of the anger of Arab youths against their own governments or against the world in general. But as soon as that anger became manifest—and it persists (see article)—America found that its various policies and predicaments in this troubled region were unhelpful to it or even counter-productive. Its economic sanctions and no-fly zones have not brought down Iraq's Saddam Hussein, but they have poured fuel on the anti-American fire. Its military bases in Saudi Arabia leave it seemingly cosy with an often brutal regime, while also offering opponents both of the West and of the Saudi royal family a useful cause. Its financial support for Israel gives it guilt by association in Arab eyes for Israel's occupation of Palestinian lands, without giving it any noticeable leverage. Its financial support for Egypt, designed originally to reward peace and establish some balance between Jews and Arabs, merely associates it with an authoritarian regime without persuading that regime to moderate the anti-western views that pervade even the state-controlled media there.

The result is that President Bush's list of successes that need to be accumulated in 2002 is going to be long. Keeping the peace in Afghanistan and helping order take hold there can mainly be done by others (see article). But beyond simply pursuing al-Qaeda cells in other countries, such as Somalia or Yemen, he will also need to sort out this cat's cradle of failed engagement in the Middle East. Almost certainly, that will include some effort to topple Saddam Hussein, for disentanglement from Iraq is in effect a pre-condition for straightening out America's position elsewhere, particularly in Saudi Arabia. So, alas, and even more difficult, is the need to restart the peace process—or, rather, the peace—between Israel and Palestine.

It is a tall order, as well as a long list. As he sets about these tasks, President Bush would do well to revive another of his foreign-policy slogans, this time from the campaign trail in 2000: that, in its conduct abroad, America should be “humble but strong”. Both characteristics have been necessary since September 11th. Both can be displayed with pride.

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Poverty and sickness

Terrorism is not the only scourge

Dec 20th 2001
From The Economist print edition

It is also time to declare war on disease in poor countries

AP

TERRORISM is like a hideous disease, and sensible countries seek to eradicate it. But it should not be forgotten that hideous diseases, of the non-metaphorical sort, kill and cripple far more people, especially in poor countries. Encouragingly, recent decades have seen huge progress in the struggle against sickness. Between 1960 and 1995, life expectancy in poor countries rose by 22 years, largely because modern medicine prevented millions of premature deaths. In the 1950s, 15% of children died before their fifth birthday; now only 4% do.

But the bad news is that not everyone has benefited. In many African countries, as AIDS sweeps through the population, people are dying younger than they did a decade ago. And in the world as a whole, 16m people still die each year from easily preventable diseases. Rich countries could greatly reduce this toll by giving more towards improvements in health care in poor countries. A new report estimates that an extra $27 billion would save 8m lives a year (see article).

Healing the afflicted is not merely a matter of compassion. It is sound economics, too

Healing the afflicted is not merely a matter of compassion. It is sound economics, too. Poor countries are sick because they are poor, but they are also poor because they are sick. Sickness reduces productivity, as anyone who has ever tried to work while shaking with fever knows. When a virus strikes, families often sell productive assets, such as cows or hoes, to pay for medicine. When parents do not expect all their children to survive, they have more, and so cannot invest as much to educate each child. Tropical diseases scare off tourists, and investors too, who prefer their workers healthy. By one estimate, malarial countries would be twice as prosperous today if the disease had never existed.

The chief responsibility for fighting disease in poor countries lies with the poor countries themselves. Several cheap and powerful treatments exist for common diseases, and could be applied more systematically. Examples include vaccination, DOTS treatment for tuberculosis and oral-rehydration therapy for diarrhoea. A few health-promoting measures, such as tobacco taxes, place no burden on national budgets. Governments of developing countries could find out, through surveys, which diseases inflict the greatest burden on their people, and allocate health budgets to provide the greatest benefit at the least cost. And some governments, notably South Africa's, could do far more to prevent and treat one terrible killer, AIDS, if they faced up to the reality of its cause.

But even if all third-world health ministers spent their budgets wisely and rationally—as few at present do—many children would still die for want of pills that cost only a few cents. The poorest countries simply do not have the cash to provide even basic medicines. This is where rich countries come in. If donors gave an extra $27 billion a year, and poor countries chipped in and reformed their health-care systems, the report's authors calculate that the cheapest, tried-and-tested treatments could be made widely available. Surprisingly, this would include even some drugs for AIDS, which are usually assumed to be too expensive for the worst-afflicted countries.

Big money, vast benefits

It is a lot of money, but it could be found. Remember that it took America's Congress only three days

after September 11th to appropriate $40 billion for the war against terror. It is too glib to argue, as some do, that poverty, disease and the hopelessness of life in the third world are the root causes of terrorism. Even poor people have choices, and the vast majority choose to live peacefully. Most of the terrorists who attacked America on September 11th came from Saudi Arabia, which is far from poor. But there is a correlation between sickness and political instability. Poor countries with high infant mortality appear more likely to collapse into civil war than equally poor places with lower infant mortality. If westerners want to reduce the number of “failed states” that provide havens for groups such as al-Qaeda, it would make sense to spend more on fighting tropical diseases.

There will be many practical difficulties. In some places crooked officials will filch funds earmarked for rural clinics. In others, civil war will prevent nurses from doing their jobs, though recent vaccination programmes in strife-torn Angola and Congo show that the heroic can sometimes be achieved.

Whatever the obstacles, there is a compelling reason why the better-off should spend more on healing the sick in poor countries. It is simply the right thing to do. A colossal number of lives could be saved, and immeasurable suffering relieved, for about $25 per rich-country citizen each year. That is less than many parents in rich countries will be spending on a Harry Potter video game for their children this Christmas.

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Letters

Dec 20th 2001
From The Economist print edition

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FAX: 020 7839 2968 E-MAIL: letters@economist.com

Religious education

SIR – The Netherlands has channelled a large proportion of its education budget through denominational schools for the past 75 years or so ("Keep out the priests", December 8th). The system has neither produced an increase in sectarian tensions nor does it seem to have affected academic standards negatively.

Apparently, state-funded religious schooling does not have to be treated as a dangerous move towards social disintegration. It can also be seen as quite a normal issue of public finance, designed to give those taxpayers who care about religion and their children the idea that their concerns are proportionally reflected in an important area of public spending. If, as in Britain, the system leads to aberrations such as parents feigning religion to enrol their children in religious schools, the answer is to make the secular schools do better. I had not expected to hear from your paper that the best way to achieve that would be to suppress the competition.

Kees Camfferman
Aalsmeer, The Netherlands

SIR – You suffer the same delusion as nearly all opponents of state support for religious schools. Articles of faith are taught everywhere about the "right" way to view the world, to test experience and propositions, and to treat others. Call it religion, liberalism or secularism, all state schools teach some particular set of ideological principles. Do not make the mistake of believing that state schools are cant-free. Surely this is not *The Economist* insisting that the public cannot be trusted to make sensible choices?

Edwin Black
Waterloo, Canada

SIR – As a governor of a state-aided Jewish primary school, I would not want my school or other similar ones to be tarred with the brush of "church-run schools". It does not fit your description. The state-aid part of the school's funding pays for a full secular curriculum and we are fully integrated with the local education authority (LEA) that funds us. We do select pupils based on membership and adherence to the Jewish faith and we have a longer school day than is usual to accommodate the additional religious studies. These are not funded by the LEA but by voluntary subscription from parents and supporters. We are simply value-added LEA schools.

Our selection of pupils simply reinforces a religious and cultural commitment to life-long learning and education. This commitment ensures that learning does not stop when pupils go home but continues out of school hours with extensive parental involvement. My experiences tell me that this is the main reason for success.

Daniel Weisman
London

SIR – The Roman Catholic church has run its own state-funded schools in Britain for nearly a century. They have successfully educated wave after wave of poor, immigrant children (Irish, Polish, Ukrainian, Italian) who came as refugees from famine, war and persecution.

Far from being divisive those immigrants and their families have been integrated completely and seamlessly into mainstream British society such that they now occupy positions at every level. Would this have been the case without the confidence, ambition, and inspiration provided by their own schools and own role models? Probably, yes, in the long run. Almost certainly not in such a short time and with such little social conflict.

M.A. Hunt
Bristol

Race losers

SIR – I am disturbed at how easily you accept racial profiling as a necessary evil after the September 11th attacks ("No, not quite a dictatorship", December 8th). As you say, questioning young Muslim men is more likely to yield useful intelligence than questioning the population in general. After the federal building was bombed in Oklahoma City, the largest terrorist attack on American soil to that date, there was serious concern about a continuing terrorist threat from the so-called patriot militias. No one suggested racial profiling of white Christian mid-western men. Why is racial profiling acceptable for brown-skinned Muslims, but not for white-skinned Christians?

David Shayer
Palo Alto, California

Summit of achievement

SIR – The summits of the Americas are effective in promoting positive change in the hemisphere ("High on words", November 24th). In fact, the summit, first held in Miami in 1994, then in Santiago in 1998 and in Quebec this year, responded to the criticism of summits as ineffective photo-ops by establishing a clear action plan. The 34 democratically elected heads of state and government took on a fulsome agenda recognising the global nature of almost all policy issues today.

This rigorous approach to summitry yielded important accomplishments for the region. Negotiations for the Free Trade Area of the Americas were launched; a strong democratic charter was adopted; a multilateral evaluation mechanism was established to monitor progress in fighting the illegal-narcotics trade; human-rights protection was improved; and a special rapporteur for freedom of expression was established. These major decisions could not have been reached without the face-to-face meeting of national leaders on a regular basis. The Organisation of American States recognises the value of these summits. We established the office of summit follow-up to be the secretariat for the implementation of summit mandates. Summits are a powerful tool in managing a complex international agenda and can turn words into good policies.

Cesar Gaviria
Secretary-general, Organisation of American States
Washington, DC

Drugs war

SIR – In your review of Richard Davenport-Hines's book on drugs ("Everyone did it", November 24th) you say that "American troops in Vietnam were fed huge quantities of amphetamines, in order to stimulate their fighting zeal." I spent two years in "Big Muddy" and was aware of no use of speed.

I was there when marijuana was suppressed and users switched to highly pure heroin, which everyone assumed was provided via the CIA-Flying Tiger quid pro quo in Laos. During the "secret war" in Laos, fought on our side by the Hmong tribesmen and the CIA, Flying Tiger Airline was the air carrier of choice for moving men and materials. It was supposedly private and legitimate. In exchange for military support in the Golden Triangle by "neutral" and pro-western forces, it was understood that heroin went out on planes that brought in supplies to Laos. But there was no speed, in the field or in base camp.

David Matthias
Atlanta, Georgia

Low standards

SIR – I note with some bewilderment the debate over the diminishing role of the parliamentary commissioner for standards and privileges (Bagehot, December 8th). British MPs have no standards and receive every privilege. The commissioner's role is now, therefore, obsolete.

John Johnston
Eye Green, Cambridgeshire

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Fighting terrorism

A little more clearing-up to do

Dec 20th 2001
From The Economist print edition

EPA

America's triumph in Afghanistan still has an untidy look

Get article background

IS THE war in Afghanistan finished? Afghan commanders on the ground seem to think so. Tora Bora, al-Qaeda's last redoubt in the eastern mountains, has been smashed by more than 200 American bombs, and groups of battered prisoners have been humiliatingly paraded by their Afghan captors. Colin Powell, America's secretary of state, is well content, telling NBC last weekend that “we've destroyed al-Qaeda in Afghanistan, and we have ended the role of Afghanistan as a haven for terrorist activity.” As a token of victory, the Stars and Stripes flew again over the American embassy in Kabul, reopened after almost 12 years.

The caves and tunnels of Tora Bora have not, however, yielded up the master-mind. Osama bin Laden—now, thanks to a gloating videotape, definitively tied to the attacks of September 11th—is thought by many to have slipped across the border to Pakistan, perhaps as long as two weeks ago. American officials suspect that some Pushtun forces, ostensibly opposed to the Taliban, may be helping its leaders escape. Certainly no senior member has yet fallen into American hands.

Mullah Mohammed Omar, the Taliban's spiritual leader, is also still uncaught, perhaps holed up with 500 men in a mountain redoubt in Baghran, a village north-west of Kandahar. As soon as one mountain retreat is overrun, and is revealed to be a series of dingy caves littered with incriminating papers, another hellish bolt-hole comes up to replace it. There may be many Taliban last stands.

Meanwhile, the interim government in Kabul, led by Hamid Karzai, a Pushtun tribal leader, is slowly gathering courage. On December 17th Mr Karzai, brimming with confidence, flew to Rome to meet the ex-king, Mohammed Zahir Shah, who is supposed to open a *loya jirga*, or grand council, to construct a more permanent government in six months' time.

The elderly monarch, who has scarcely said a word since the war began, is probably the least of Mr Karzai's problems. Potentially much more troublesome is Burhanuddin Rabbani, the leader of the Tajik-Uzbek Northern Alliance, de facto ruler of Kabul and pre-Taliban president of the country, who has been strong-armed into giving up power. Although he has acquiesced, Mr Rabbani was still squatting in his palace at mid-week, and the time-honoured ethnic rivalry is bound to rear its head before long.

Members of the old Taliban regime may also need close watching. On December 16th Mullah Agha Jan Mutasim, the former finance minister, said that, if a stable Islamic government were to be established, “We don't intend to launch any action against it.” Small comfort for a regime that may well be unstable for some time.

The interim government's hopes of survival, as well as the country's hopes of peace, depend heavily on outside help. The first detachment of international peacekeepers, predominantly from Britain, Germany and Turkey with American back-up in an emergency, were expected to set themselves up in Kabul by December 22nd, alongside the interim government. They will keep the peace mostly in Kabul itself, and perhaps in scattered points beyond. But their numbers and powers are still a matter of dispute.

Both Mr Rabbani and Mohammed Fahim, the interim defence minister, want no more than 1,000 peacekeepers in Afghanistan. The German defence minister, Rudolf Scharping, thinks at least 8,000 should be sent; any fewer would be “unacceptable”. Britain, which has agreed to lead the force at first (see article), has cut its contribution. Whereas military planners once talked of sending about 3,000 men, between 1,000 and 1,500 will now go, “for several months, just to get the security force going,” in Tony Blair's words.

The powers the peacekeepers will wield, especially while western troops are still conducting search-and-destroy operations, are very unclear. The Afghans appear to see them as glorified security guards. Abdullah Abdullah, the interim foreign minister, has demanded that any peacekeeping units be constrained by a UN mandate to use force only in self-defence, and the Northern Alliance says it wants them there mostly to protect government meetings.

Mr Scharping insists, and the British and Russians agree, that any peacekeepers deployed to Afghanistan will need a mandate much stouter than this, and will have to be allowed to impose peace by force if necessary. The peacekeepers also want a link to the American commander in Florida, so that all deployed units will know what the others are doing. No contributing country wants to see its men become targets (for all sides) if war breaks out again.

British officials have nevertheless insisted that a first gathering of potential troop-contributing nations, convened in London on December 14th, was a great success. At least 16 governments—including those of France, Germany, Spain, Argentina, Australia, New Zealand, Canada, Jordan and Malaysia—held a second round of talks in London on December 19th. At least 200 British marines were expected to get to Kabul on time.

But even as these preparations for keeping the peace gathered pace, military operations of a more classic kind were still in progress. The American air force launched 138 bombing sorties over Afghanistan on December 17th, according to the Pentagon, most of them over Tora Bora and around Kandahar. It made as many the next day, but dropped no bombs. Donald Rumsfeld, America's defence secretary, on a surprise visit to troops in Afghanistan, dared to speak of his country's ambitions there in the past tense. “We were here”, he said, “for the sole purpose of expelling terrorists from the country and establishing a government that would not harbour terrorism.” He insisted, however, that the job was not done.

A day or so later, Mr Rumsfeld used a meeting with fellow NATO defence ministers in Brussels to repeat the theme that the American-led offensive would not be ended quickly. On the contrary, he said, “the task is still ahead of us [and] it's going be tough.” He also reaffirmed that America reserved the right to strike targets associated with al-Qaeda in Yemen and Somalia, and possibly farther afield, without additional authorisation from the UN Security Council. His NATO counterparts agreed that their forces must also be reorganised to take on more missions far from home in the fight against terrorism.

There may be only one outstanding military task in Afghanistan which intensely concerns America's Defence Department, and that is carrying out the wishes of President Bush to get hold of Mr bin Laden “dead or alive”. Once that is done, American interest will probably shift to the danger that still looms from other places. Mr Rumsfeld said in Brussels that the terrorist attacks of September 11th may have been only a “dim preview” of the destruction that western cities—European as well as American—may face if violent states or terrorist groups acquire armouries of non-conventional weapons.

“Contemplate the destruction they could wreak in New York, or London, or Paris, or Berlin with nuclear, chemical or biological weapons,” he urged his audience. For all the success in Afghanistan, America's often breezy defence secretary has no illusions that this war is over.

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Muslim reaction

The liberals' hour

Dec 20th 2001 | CAIRO
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EPA

The fall of the Taliban has changed minds in many ways

IN A bitter joke making the rounds of Arab capitals, a New Yorker in 2030 is showing his son the site of the twin towers. “What happened to them?” asks the son. “Some Arabs attacked them and they fell down,” explains the father. “What's an Arab?” asks the son.

The joke draws laughs, because a mood of doom is about the only thing uniting Arabs—and many other Muslims—after America's swift and almost total triumph in Afghanistan. Those who shared American grief on September 11th now fear that success has bred a taste for blanket vengeance against perceived enemies, most of whom, it is commonly assumed, are likely to be Muslims. For those noisy few who cheered the attacks on America, and for Islamist radicals in particular, layers of illusion have come tumbling down, leaving them exposed to the wrath not only of America but of fellow Muslims too.

It is worth listing some of these illusions. The bizarre, but widely believed, claim that America fabricated evidence against Islamist militants is in tatters. The contradictory assumptions that Afghanistan is a perennial graveyard of invaders, and that savage American bombing would carbonise the place, have been proved mirages. The notion that Osama bin Laden's call for *jihad* would rouse millions of fighters has crumbled, and the myth that Mullah Mohammed Omar's “emirate” was a vanguard state for a great Islamic revival, or that America was engaged in a war against Islam, have been torpedoed by the sight of Afghan Muslims revelling in their rediscovered freedom.

All this, plus the now abundant evidence of al-Qaeda's murderous nature, has emboldened Muslim liberals. Long cowed by extremist rabble-rousing, many now dare to speak out against religious obscurantism and the hijacking of the faith. A recent commentary in *Al Sharq al Awsat*, a Saudi-owned daily, accused Mr bin Laden and his followers of “putting the whole Islamic nation on a butcher's block.” Other intellectuals have called for rooting out the hostility to the West that has become a fixture of “Islamist” teaching. “We cannot beautify our image in the eyes of others without first improving the original,” insists Abdel Hamid Ansari, the dean of Islamic law at Qatar University, in *Al Hayat*, a respected newspaper based in London.

At the practical level, American determination has bolstered the will of some governments to clip the wings of radical movements. Both Yemen and Pakistan have placed thousands of hitherto unregulated religious schools under stricter government control. Saudi Arabia now carefully monitors the 200-odd private charities that send some $250m a year to Islamic causes abroad. For the first time in years, Egypt's government did not offer amnesties to any Islamist prisoners this Ramadan. Instead, it has referred more than 200 to military courts. On December 18th, Yemeni forces apparently stormed a

hideout of Islamist militants linked to Mr bin Laden, the first such action taken by Yemen since the September attacks.

Yet neither ruthless house-cleaning nor calls for reform have done much to diminish popular suspicion of America. Interest in Mr bin Laden's fate has dwindled almost as fast as his fortunes, and attention has shifted straight back to more familiar ground. On the final Friday of Ramadan, 1.5m worshippers at the Great Mosque of Mecca, and tens of millions more listening around the world, heard a rousing sermon by Sheikh Abdel Rahman al Sudeis that lambasted “the state terrorism of international Zionism”. “Are we incapable”, he demanded, “of finding just solutions to stop the flow of Muslim blood, and to revive the Islamic nations' security, greatness and prestige?”

The rhetoric of victimisation goes far beyond mosques. A recent commentary in *Al Ahram*, an Egyptian daily, asserted that the war in Afghanistan was merely a test for the new weapons America will use to “enforce absolute sovereignty over the world at large”. Editorial writers in Pakistan have speculated that America's real aim in Afghanistan is to secure access to Central Asian oil, or to set up military bases close to China. American credibility is still so low that, in an Internet poll by the al-Jazeera TV channel, more than 80% of respondents thought the videotape released by the Pentagon which purports to show Mr bin Laden taking credit for the attacks on America was a fake.

The resort to hyperbole, still common in the Muslim world, and the desire of leaders to divert attention from their own failings, go some way to explaining this continued mistrust of America. Yet the trouble runs deeper. As Munir Shafiq, writing in *Al Hayat*, explains, many Muslim regions, unlike nearly every other part of the world, have not fully emerged from colonialism. “We are still fighting our battles for independence,” he says. And although America has no hand in some of these travails, its supposed role as the world's “supercop” attracts fury as well as exaggerated expectations.

Nearly all Muslims concede America's right to fight terrorism, but the Bush administration's penchant for unilateralism raises fears. Why, they ask, is Iraq in the firing line when its people have already paid a terrible price for their leader's misdeeds? How, they ask, can others fail to see that struggles for freedom in places like Kashmir or Chechnya, however unsavoury some of their proponents may be, are no less just than those in Bosnia or Kosovo?

Recent events add urgency to such questions. After this month's assault on India's Parliament, Pakistan worries that America may wink at harsh Indian retaliation for its sponsorship of the Kashmiri separatists presumed to be responsible. And America's further tilt towards Israel, blaming Palestinian violence rather than the Israeli occupation for unrest that has killed three times more Palestinians than Israelis, has outraged Muslim opinion. It is sobering to hear a peasant in the remote Egyptian province of Fayoum declare that, although America may have proved Muslims wrong about Afghanistan and showed that Mr bin Laden is no hero, “its policy in Palestine makes me so angry I could shoot someone.”

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About sponsorship

Afghanistan's art

Missing

Dec 20th 2001
From The Economist print edition

The country's heritage can't easily be reassembled

Get article background

EPA

One survivor, with human figures restored

AFGHANISTAN'S rich cultural heritage, at the crossroads between India, Central Asia, Iran and China, was once reflected in the Kabul museum: Islamic art, Roman bronzes, Alexandrian glass, Chinese lacquerware, Indian ivories and an extensive Buddhist collection. The past decade, however, has been devastating.

As Soviet troops withdrew and the country fell apart, the museum staff packed the collection into crates, the most valuable of which were moved to the presidential palace. In the years that followed, looting claimed over 70% of the museum collection—estimated at 100,000 artefacts—and fed an active Pakistani underground art-dealing network. The Society for the Preservation of Afghanistan's Cultural Heritage (SPACH), a charity financed by European money, installed heavy doors and steel locks, made a proper inventory, and moved part of the remaining collection to the Kabul Hotel.

Looting largely stopped after 1996, when the Taliban took over Kabul. The new city masters placed guards around the museum, and the crates were moved from the Kabul Hotel to the Ministry of Information and Culture. In 1999, responding to international pressure to protect the art, the authorities threatened looters and vandals with amputation.

Unfortunately, the Taliban's cultural enlightenment was brief. First, human figures in pictures were painted over. Then, earlier this year, the authorities ordered the destruction of all statues and non-Islamic shrines. The dynamiting of the huge Buddhas at Bamiyan seized most of the world's attention. But Taliban officials also vandalised the museum, smashing the remains of the collection with hammers and axes. The crates in the Ministry of Culture received the same treatment.

Afghanistan's cultural heritage will have to be rebuilt by retrieving art that has been smuggled out. UNESCO is on the case, working with the police and with art organisations. Two smugglers were recently arrested for trying to bring Afghan artefacts into Britain. SPACH has been recovering bits of the museum collection that have turned up on the art market and has sent them to the Guimet museum in Paris, while the Swiss Afghanistan Museum is collecting donations of Afghan art. All recovered pieces will return to Afghanistan once the country is at peace.

It is still difficult to say how much harm neglect and fighting have done to architectural treasures, such as the Jam minaret—one of the largest in the world—or the Gawhar Shad mausoleum in Herat. UNESCO plans to send a mission to Afghanistan in January to assess the damage, but already reckons it will need $400,000 for priority restoration work next year.

Can cultural disasters of this magnitude be prevented? A number of international conventions are supposed to protect the world's cultural heritage, even in case of war, but they have so far proved toothless. This could soon change. Destruction of cultural property is included as a crime in the statute of the International Criminal Court. Once that court becomes reality, cultural criminals may at last have to answer for their actions.

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Homeland security

America the unready

Dec 20th 2001 | WASHINGTON, DC
From The Economist print edition

Preparations against another terrorist attack range from the patchy to the poor

SETTING up the Office of Homeland Security in early October—the first such cabinet-level creation for a decade—George Bush called for “a comprehensive national strategy to safeguard our country against terrorism.” He still hasn't got one.

Evidence of ambivalence towards domestic security is everywhere. More than 100 bills have been introduced into Congress with the label “homeland security” on them. Yet compared with the $15 billion doled out to the airline industry, the cash they provide for things like emergency health care is puny. When the governor of California posted troops on bridges in response to a terrorist alert, he was widely criticised for panicking the public.

The contrast with the judicial response to terrorism is instructive. Whatever one thinks of John Ashcroft's proposals to increase the powers of law-enforcement bodies, they are unmistakably a serious effort to organise the Justice Department for war against terror. No such claim can be made for the administrative response so far.

To be fair, there has been a response. In early December America signed an agreement with Canada allowing customs officials to inspect factory shipments on site, rather than clog up the borders. A similar deal with Mexico is in the works. Security has been stepped up at nuclear power stations, oil pipelines, and so on. Congress has passed an airline-safety bill, making all baggage screeners federal employees and requiring airlines to put steel doors on cockpits. And a bill in the Senate would require passenger lists to be checked against a new immigration database as well as making it harder for students from countries that sponsor terrorism to get visas.

Fine. Border and visa controls need tightening (even though they can never be perfect). But doubts remain about security at nuclear power plants (see article). And although airline security has got better (not hard), the airline bill played only a modest role in that. Most of the discussion focused on the secondary question of who should employ baggage screeners (rather than what they should do) and the compromise reached was an extraordinary muddle: screeners will be federal employees for three years, presumably driving the (admittedly incompetent) screening companies bust—after which they will get a chance to return to business.

And the weakest part of America's border defences remains unaffected: the Coast Guard. By its own admission, it ranks 39th out of 41 countries in terms of its equipment. Modernising its fleet of 80-odd ships and 200 aircraft and helicopters should begin next year, and it will take a decade. For the moment, the Guard does not have enough vessels both to patrol the high seas for drug smugglers and to protect ports. Of the 16,000 containers that come into America by ship every day, only 500 or so are inspected.

These operations are all run by federal authorities. The news is better at the local level. On September 11th, New York was able to move 1m people out of the city by boat and cordon off lower Manhattan within an hour. Some of the injured were being treated in New Jersey within minutes. In early December state and city officials from around the country met in Pittsburgh to draft similar new downtown evacuation plans.

So the locally run “instant response” system is in better shape than the preventative programmes

administered by the federal government. But even here, there are exceptions. Plans for the evacuation of schools vary wildly. In New York on September 11th, many of the emergency services were unable to communicate by cellphone for about six hours because there was no way to give some users priority over others, or to switch calls between different networks when one was damaged. A priority system is under discussion, but telecoms firms are balking at the cost ($2 billion, they claim).

Anyway, New York is not typical. Because of previous attacks, its emergency services are in better shape than most. And the pattern of casualties on September 11th—many deaths, only light injuries—would not be repeated in a biological or chemical attack. They would produce thousands of serious illnesses.

The biggest gaps in America's defences lie in neither the federal nor local fortifications, but in the areas where different levels of government fuse together. Here there are problems to do with money, co-ordination and political will.

State and local governments bear most of the organisational burden in responding to terrorism (there are 11,400 FBI agents but 650,000 local policemen). The National Governors Association reckons homeland security will cost the states $4 billion extra in the first year. The states are facing big budget shortfalls, so they are clamouring for federal help, but they will not get much. The mayor of New Orleans, Marc Morial, complains that of the $10 billion to be spent on homeland defence this year, states and cities will get just 5%. That may be an underestimate. But the balance of spending is clearly skewed unfairly towards the federal government.

Even with more money, there would be problems of co-ordination. When the mayors of Baltimore, Gary (Indiana) and Reno (Nevada) tried to improve ties between the FBI and local police, they retreated in frustration. The executive director of the Conference of Mayors expresses “serious concern regarding the lack of intelligence sharing by the federal government.”

The Office of Homeland Security was set up specifically to deal with such problems. It is far too soon to declare failure. But the early signs are not good. The office has been set up on the model of the National Security Council. The head of it, Tom Ridge, has executive power but no formal spending authority from Congress, as department heads do. The NSC has usually worked best when its head has been on good terms with the president. Mr Ridge, an old friend of Mr Bush, certainly has that advantage. The difference, though, is that the NSC is largely a policy-making post. The homeland director has operational responsibilities. It remains unclear whether he can exercise those without budgetary powers, too.

Somebody call a doctor

All the doubts about money, co-ordination and political will apply to the most worrying aspect of homeland security: the medical response. Though it has some of the best hospitals in the world, America faces two big problems in dealing with mass casualties. In the search for efficiencies, its hospitals have largely eliminated “surge capacity” (the ability to cope with a flood of patients). And its public health system, which is supposed to track the progress of infectious diseases, has been starved of funds for decades.

The two weaknesses demand very different administrative solutions. Surge capacity can only be created by regional co-ordination—and the region has to be big, so that the local hospitals are not all overwhelmed. A bossy central figure needs to work out how competing private hospitals and public medical facilities, such as those run by the Veterans' Affairs Department, would share the burden. Sadly, no such “top-down” effort is yet evident.

By contrast, the public health system requires “bottom-up” rebuilding. Half of the 3,000 state and local health departments do not have high speed Internet access (a matter of course in law-enforcement agencies). One in ten does not have e-mail and 80% do not have emergency response plans. To modernise the system would require about $10 billion over the next five years. In the current fiscal year, it has got around $500m. Half of that will be swallowed up by the cost of anthrax testing.

On balance, then, America's preparations against future terrorist attacks range from patchy to poor, and Mr Bush's “comprehensive national strategy” seems a long way away. Perhaps the most convincing defence of the response so far is that, in an open society unaccustomed to domestic terrorism, it makes sense to start slowly and build cautiously. That will be fine—so long as the terrorists take their time too.

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Nuclear waste

Obey the rules

Dec 20th 2001 | WISCASSET, MAINE
From The Economist print edition

Has a possible terrorist target in Maine become any less easy to hit?

AP

Yankee doodle, not so dandy

WISCASSET prides itself on being “the prettiest village in Maine”. Six miles from the centre of town, just around a bend in Birch Point Road, the dome of Maine Yankee Nuclear Power Station looms into view. Maine Yankee was once a welcome asset. It contributed $12m a year to Wiscasset in property taxes alone, cutting everybody else's bills by 90%. But in 1997 the plant was decommissioned, 11 years before the projected end of its useful life. Some 3,300 “maintenance infractions” were reported, 300 of which were deemed hazardous to public safety.

Maine Yankee is now officially closed, and is being dismantled. More than 900 tons of radioactive spent fuel, more than at any other decommissioned nuclear power station in America, are still stored there. A federal report posted on the website of the National Council on Radiation Protection estimates that if a tenth of 1% of the spent fuel's radiation were released into the air it would produce lethal doses over 1,000 square miles. The stuff is dangerous for 10,000 years. Much of it is covered only by a metal shed. According to the Department of Energy, it will be removed in 2020, at the earliest. Others say it will not go until 2038.

The station's officials used to say the spent fuel was so safe that armed guards were unnecessary. After September 11th they stepped up security measures, declaring “a heightened state of alert”. In October, Stanley Lane, from neighbouring Westport Island, decided to put that claim to the test. Unchallenged, he drove his car around the grounds and past the spent fuel. There are now a few more guards in evidence and a few road barriers; but it is some way from Fort Knox.

Eric Howes, a company spokesman, says that Maine Yankee will comply with any new federal regulations and would not oppose having the National Guard at the site. Ray Shadis, of Friends of the Coast Opposed to Nuclear Pollution, doubts it. He claims that the company asked for waivers against having to apply stricter security not only before September 11th, but afterwards too.

The people of Wiscasset are petitioning the federal government to remove the spent fuel. In a letter to the Nuclear Regulatory Commission, Maine's governor, Angus King, has agreed that cuts in security are “entirely unacceptable”, though he has not called in the National Guard.

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George Bush and education reform

Please sir, can we have some more?

Dec 20th 2001 | WASHINGTON, DC
From The Economist print edition

A half-decent, but politically shrewd bill has made it through Congress

GEORGE BUSH has been waxing lyrical about education reform since becoming governor of Texas in 1995. On becoming president he made education and tax cuts the twin lodestars of his administration. Mr Bush says he will sign the No Child Left Behind Act into law in January.

Despite its simpering name, this is the most important piece of federal education legislation since Lyndon Johnson rammed the Elementary and Secondary Education Act through Congress in 1965. The aim is to tie federal dollars more closely to performance. The bill requires schools to give students annual tests from the third through to the eighth grades. The results will be reported to parents, and broken down by race, gender and other criteria.

The bill aims money at poor students and struggling schools. The 50 school districts with the highest percentage of poor students will immediately get more cash. But the money comes with strings. Parents of children at schools that continue to fail for several years will win the right to transfer them to better-performing public schools and money to buy after-school education for their children.

The measure includes a ragbag of other sensible ideas. It gives states a little more flexibility to move money among different federal programmes. It sets a timetable for states to make sure that all teachers are qualified to teach their subjects (a revolutionary idea). And it increases spending on reading instruction in early grades for children with sub-standard English.

All this is the culmination of an “accountability movement” that has gripped governors' mansions for the past two decades. But the bill had a rough ride in Congress. Republicans disliked strengthening the federal role in education. The Democrats resisted anything that smacked of excessive competition. Black and Latino politicians feared that annual testing would stigmatise schools in poor neighbourhoods without helping them.

Will the bill improve education? The twin bugbears of educational reform are excessive expectations and premature disappointment. The accountability movement has produced big improvements in some states (Texas and North Carolina) and cities (Chicago). But educational change is a sluggish affair. And the federal government accounts for only 7% of the money spent on schools.

The biggest problem with the bill is less what it does than what it ignores. Mr Bush dropped vouchers early on, despite evidence that they improve opportunities for the poorest children. The bill does too little to boost charter schools (which are freer from local authority control and tend to produce better results). And an opportunity to reform America's dismal special-education programmes has been missed.

Politically, though, Mr Bush may have achieved just what he wanted. He is proving that he is a different kind of conservative from the zealots who wanted to destroy the Department of Education. The bill oozes compassion (the biggest boost in federal spending on poor children in decades), pragmatism (a willingness to boost the size of federal government when it might help) and bipartisanship (a new friendship with Ted Kennedy, the chairman of the Senate education committee).

Despite Mr Bush's high poll ratings, two fears stalk the White House. The first is that he has moved too far to the right: that he is seen as more interested in tax cuts for plutocrats than the welfare of ordinary people. The second worry is that, like his father, he is too involved in foreign policy. The education bill helps on both fronts. Even more than the tax cut, this could be the anchor of his re-election campaign.

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Ground Zero's neighbour

The recharging of the Battery

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The bit of New York in what used to be the shadow of the World Trade Centre

"WELCOME back, we're open for business." The hopeful signs are popping up on the windows of shops in Battery Park City, the 92-acre neighbourhood created on the west side of the World Trade Centre from the land excavated during its construction. No part of New York had benefited more from the city's success in the 1990s and none was hit harder by September 11th than this tip of Manhattan.

On September 10th, more than 9,000 people lived in the area, many of them small families in small apartments with lovely views of the Hudson river and the Statue of Liberty, just a short way from their city jobs. Another 40,000 worked in the World Financial Centre, in the middle of Battery Park City.

Within hours of the attack, everyone had gone: some dead, some sudden guests on the couches of relatives, some new clients in New York's hotels. Now they are trickling back. But it is not clear whether Battery Park City will ever fully recover. Repairs to some parts of the World Financial Centre will take years. Many roads and subway stations remain closed, and the fires are still smouldering. A sad memorial is covered with photographs, written notes of grief and hundreds of stuffed bears that day by day grow more tattered.

So far, 10% of the workers and 60% of the residents have returned, the Battery Park City authority reckons. That is probably too optimistic. Local shopkeepers say that many of them have come back only to pack up, before they leave for good. Some families are moving away because the city's Board of Education badly mismanaged the resettlement of children from the local elementary school. There is also the nervousness about mere breathing. Tests of the local air quality have been reassuring, but the sceptics wonder whether anyone really knows how to measure the contaminants arising from the disintegration of skyscrapers packed with technology. Many people who spend time in the area have developed a rasping cough.

Some unhappy tenants have begun rent strikes, asking to be released from their leases or given a better deal. Property deals that were not concluded before the attack are being renegotiated. An unusual number of evangelists work the streets.

Yet there are some signs of recovery. Buildings have been cleaned, streets scrubbed, small parks replanted. On the southern tip of Battery Park City an elegant new hotel, the Ritz Carlton, will soon be completed. The exodus is pushing down rents by as much as 40%, which may bankrupt some apartment owners but will surely attract new tenants; potential recruits are already looking around.

In November the ground was broken on the first post-September 11th construction project in Battery Park City. This is a 70,000-square-foot, $60m addition to a Holocaust Memorial. The decision to proceed was taken even though fewer people were coming to the memorial because of damaged roads and sharply reduced school-trip budgets. The museum's chairman, Robert Morganthau, points defiantly to the memorial's theme: out of the ashes, you rebuild.

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Lexington

For family and fraternity

Dec 20th 2001
From The Economist print edition

George Bush's two main weaknesses have helped him as a war leader—so far

WINSTON CHURCHILL and Alexander the Great were both hard-drinking men with famous fathers. But, really, what is happening now is going too far. These days an aspiring war leader should be a hard-driving meritocrat, who spent his formative years collecting PhDs and reading *Foreign Affairs*. Not so George Bush. Having claimed his ancestral place at Yale, he spent his time organising drinking games at his fierce-partying fraternity. Even when he got serious, sober and political, he concentrated exclusively on domestic policy (education, ironically). The only other country he seemed to know of was Mexico.

The smirk, the insouciance and the sense of entitlement are what most enrage the people who dislike Mr Bush. Now they have to square these flaws with military success. Barely three months after September 11th, Mr Bush has masterminded a stunning victory (fingers crossed) in a country that was once known as the graveyard of empires. Al-Qaeda is in retreat. And the world's leaders, even that Pakistani guy he once found he couldn't name, are competing to be George W.'s best friend.

Washington lore has concocted an explanation—the war has turned Prince Hal into Henry V. But its version of Henry V has little to do with Shakespeare and a lot to do with wishful thinking. The new George Bush, America likes to tell itself, has flourished in spite of his dissolute past. The dauphin and frat boy have vanished, to be replaced by a dedicated, hard-working warrior king. The truth is more interesting. In many ways, Mr Bush has flourished because of his pampered and macho youth.

The dynastic background bequeathed two things. The first is a formidable team of advisers. Mr Bush's inner circle is centred on his father's council of war: Dick Cheney and Colin Powell both served Bush senior. The son's court was not so much a new administration as a restoration. The second bequest was a preppie talent for delegation. One weakness of people who make it purely on their own ability is that they cannot resist the temptation to prove how clever they are: Bill Clinton once held a six-hour meeting on Bosnia. Mr Bush would no more second-guess his lieutenants than query his quail-dog's nose. Donald Rumsfeld has been given his head at the Pentagon, Colin Powell his at State. Disagreements—such as the early spat over “ending rogue states”—have largely been kept within the family.

This is not quite as old-fashioned as it sounds. Mr Bush has a chief executive's taste for setting broad strategy and establishing clear lines of authority. Whereas Tony Blair works himself to exhaustion, Mr Bush spends an hour a day on the treadmill and gets to bed by 9.30pm. But there is also an older code at work—the princeling bringing in the little people (such as thrusting young Tony of the London office) to take care of the details.

Mr Bush's time in the fraternities has also served him better than you might think. For most of his lifetime, American meritocrats have waged a relentless war against both college societies and the wider macho culture they embody. The meritocrats hail brains rather than brawn, professional credentials rather than hail-fellow-well-met collegiality. They preserve a particular scorn for the armed forces, which they blame for bringing disaster in Vietnam and perpetuating outdated prejudices. The Clinton administration was in almost constant conflict with the top brass, first over the question of homosexuals, then over putting women in the front line.

But the war on terrorism has given a new lease of life to the culture of macho collegiality. The people who have captured the country's hearts in the wake of September 11th are not the brainy people whom Robert Reich once fawningly called “symbolic analysts”. They are muscular and macho types: firefighters, policemen, soldiers. Mr Bush, who once relished branding new recruits to his fraternity with a “Delta” on the back, is perfectly at home with men in uniform. He shares their obsession with sports, particularly baseball. He is happy putting his arms around firefighters and soldiers. He struck an instant bond with Tommy Franks, the general in charge of the war, because he went to the same high school in Midland as Laura Bush.

Moreover, what was once derided as simplistic now looks purposeful. “Bourgeois Bohemians”, yesterday's new establishment, loved to see the world in shades of grey: shades of grey require experts to interpret them. The Clintons turned obfuscation into an art form, on everything from Bill's private life to foreign policy. For Mr Bush, Osama bin Laden is just “the evil one”.

A little family business to tidy up

So these weaknesses have become strengths. But there were reasons why they were once seen as fault-lines for Mr Bush. And one problem may expose them: Iraq. Washington is currently riven by a debate on what to do about Saddam Hussein. The hawks argue that it is impossible to neutralise the threat of state-sponsored terrorism without eliminating Iraq's tyrant. The doves counsel that this will be no easy task. The Europeans may be reluctant to join an American coalition; Saddam has much more firepower than the Taliban; getting things wrong would destabilise the Middle East.

Disagreement runs so deep on this that Mr Bush will have to settle things himself. Adjudicating between these two camps could yet prove the most important decision of his presidency. The worriers' fear is that he will allow a combination of dynastic loyalty and frat-boy hubris to over-simplify his thinking. Dynastic loyalty will urge Mr Bush and his courtiers to finish the job his father left undone. Frat-boy hubris may tell him that he can do no wrong in foreign policy: that if the pessimists were wrong about his ability to refashion Afghanistan, they are likely to be wrong about his ability to refashion Iraq. And he could be right to attempt it. It just looks harder. Either way, Mr Hussein should be worrying that Mr Bush may already have delegated some household lackey to brand a target on his back.

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Argentina's economy

Patience wears thin

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AP

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IN 1989, Raul Alfonsin was forced to step down as Argentina's president when mobs began to loot supermarkets amid hyperinflationary chaos. That event is burnt into the country's political memory. So it looked like a grim augury for Fernando de la Rua, the current president who, like Mr Alfonsin, is a member of the Radical party, when looters attacked supermarkets in several cities recently to obtain food. A one-day general strike on December 13th attracted more support than had seven previous stoppages during Mr de la Rua's term. After 42 months of recession, the patience of some Argentines has snapped.

Since July, Argentina's economy has contracted at an annual rate of 11%, according to Miguel Angel Broda, a local economic consultant. The latest official survey says that in October unemployment exceeded 18% (it is now probably 20%). And that was before the government this month imposed limits on cash withdrawals from banks, which have hit retail sales and the informal economy hard.

The looting is still isolated. But it comes as Mr de la Rua and Domingo Cavallo, his economy minister, try to persuade Congress, dominated by the opposition Peronists, to approve a stern budget, aimed at restoring $2.7 billion in loans suspended by the IMF and other multilateral bodies. Those loans are the government's last hope of avoiding a unilateral debt default and the collapse of the currency board which pegs the peso at par to the dollar.

Though much-delayed, the budget is still vague on details. It includes no estimate for economic growth, but does recognise that tax revenues will fall (by 3.8%). To reach the government's balanced-budget target, spending is to fall by $9.2 billion, or almost a fifth, compared with this year. Mr Cavallo claims that $5 billion will be saved in lower interest payments as a result of debt restructuring. Some $3 billion will be saved by maintaining for a full year the cuts in provincial finances and in public-sector salaries introduced in August.

But that still leaves more savings to find. Mr Cavallo has hinted at further wage cuts. The Peronists have blocked attempts to eliminate the extra month's wage paid by tradition in December. Other potential targets for cuts include regional-development funds, teachers' pay and university financing. None of this is politically easy.

To rally support for his frail government, the hapless Mr de la Rua has recently held talks with Carlos Menem, his Peronist predecessor. Mr Menem, who last month was cleared of arms-smuggling charges,

has an interest in seeing Mr de la Rua stay in office until his term ends in 2003, since he would be constitutionally ineligible to run were a presidential election to be brought forward. But by cosying up to Mr Menem, Mr de la Rua risks alienating other Peronist leaders.

The currency board has become a sham

The government still clings to the hope of escape: approval of the budget would probably liberate IMF aid, giving time for a planned restructuring of the debt held by foreigners. They are likely to be offered interest rates of no more than 4%—less than the 7% offered to domestic creditors last month. Meanwhile, the government is scrambling to meet debt payments by hook or by crook: to do so this month, it delayed the payment of state pensions and forced private pension funds to hand over bank deposits for government paper.

But even if Mr Cavallo pulls off the debt swap, it is hard to see how growth will return and the currency board survive. The president's meeting with Mr Menem has widely been seen as a nod towards adopting the dollar, a step favoured by both men as a last resort. So too has the appointment of Miguel Kiguel, a member of Mr Menem's economic team, as Mr Cavallo's chief adviser, replacing Daniel Marx, the finance secretary, who resigned last week.

Local bankers are lobbying hard for dollarisation, since a devaluation would cause many of their dollar loans to go bad. But Argentina may not have enough dollar reserves to replace the pesos in circulation without first devaluing. Dollarisation has drawbacks too: there would no lender of last resort for the banks and, unless it came with a devaluation, it would not help the economy's trading problems. Mr Cavallo has said the peso is overvalued by 20%.

The currency board has become a sham. The dollar now buys $1.10 in pesos on the streets, and the government may plug its budget gaps with non-convertible promissory notes. Most investors already view outright debt default as inevitable. Even in Buenos Aires, debate increasingly dwells on what form the country's economic conflagration will take, and whether Mr de la Rua's presidency will suffer a fate similar to that of Mr Alfonsin's.

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Politics in Chile

A warning from the right

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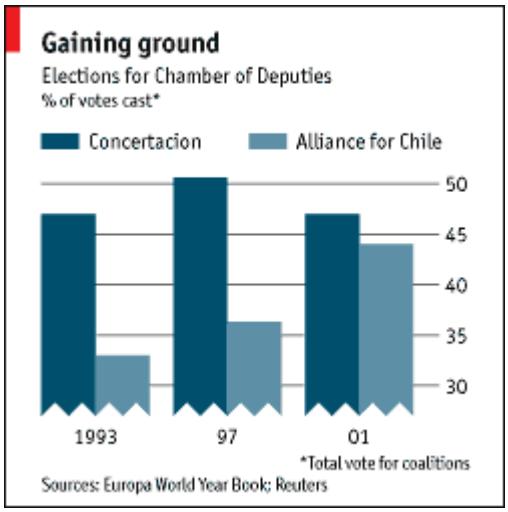
A congressional election suggests the days of the centre-left are numbered

NOT so much a defeat for the centre-left coalition that has governed Chile since 1990 as a resounding triumph for the main opposition party, the right-wing Independent Democratic Union (UDI). That was the verdict on an election on December 16th for the lower house of Congress and half the Senate.

The governing coalition, known as the Concertacion, kept its majority in the lower house, but this shrank from 20 seats to six. Its parties won a combined 47.9% of the vote against 44.3% for the opposition (known as the Alliance for Chile). President Ricardo Lagos hailed this as a victory, given the Concertacion's time in power and Chile's currently weak economy.



But it was the UDI that was rejoicing. Its share of the vote rose to 25.2%, up from 14.4% in 1997, earning it 35 representatives in the 120-seat lower house, up from its present 22 seats. That makes it Chile's largest political party. Its steady rise has positioned its leader, Joaquin Lavin, the mayor of central Santiago, not only as the undisputed candidate of the right, but as the likely winner of a presidential election due in 2005. Mr Lavin lost only narrowly to Mr Lagos last time. Next time his party base will be stronger.

Founded as an extreme right-wing party during General Augusto Pinochet's 1973-90 dictatorship, the UDI has always had support from the rich and from business. Now it is picking up votes among the poor, thanks to a strong organisation and Mr Lavin's populist bent. Ironically, the party has benefited, too, from the disappearance from Chilean politics of General Pinochet. This has allowed it to emerge from the dictator's shadow. “These days, people don't boo us any more at the local market,” says Mario Varela, who was elected to Congress for the UDI from a poorer suburb of Santiago.

The UDI's advance was mostly at the expense of Christian Democracy, the biggest party in the Concertacion and, for the past 40 years, the largest party in Chile. It lost 14 of its 38 lower-house seats and two of its 14 senators.

On paper, the result should not hamper Mr Lagos's ability to govern. The sticking-point for government bills has long been the Senate, which is evenly balanced. In its first two years, the government has pushed through an unemployment-benefit scheme, measures to reduce tax evasion, new labour rights, and laws liberalising capital and financial markets. The priorities now, says Mr Lagos, are reforming health services, broadening access to higher education and improving Chile's privatised pension system.

But two things may make life tougher for the government. The first is backbiting within the Concertacion. The need to soothe Christian Democracy's humiliation may mean that a long-promised divorce law is watered down, for example. The second is the need to deal with Mr Lavin's triumphant party. One early test will be a government proposal to limit electoral spending, blocked by the opposition.

With only six adults out of ten casting valid ballots, all politicians face public scepticism. The task for Mr Lagos is to find measures that command consensus and yet can deliver tangible results, particularly in terms of jobs. The Concertacion has been put on notice that its hold on power may be drawing to a close.

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Haiti's attempted coup

In the shadows

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Was it a put-up job?

THE known facts, as usual in Haiti, are few and puzzling. In the small hours of December 17th, a handful of gunmen stormed and entered the National Palace in Port-au-Prince. The palace guard, several hundred strong, took hours to regain control. Seven people died, including two policemen, two bystanders and one attacker. The others fled. Journalists were allowed into the palace to see the dead assailant's body. The corpse wore the uniform of the Haitian army, which President Jean-Bertrand Aristide had disbanded after he returned to power in 1994, when an American invasion restored democracy.

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Mr Aristide was elected again a year ago. His government branded this week's events as an attempted coup, the second this year. If so, it was an odd one: the attackers should have known that the president was asleep at his home in a suburb, as he usually is on weekend nights. Within a few hours, masses of rioters loyal to Mr Aristide had attacked and burned down the offices and homes of opposition leaders around the country, killing two people. Several radio stations critical of the government also closed briefly after receiving threats.

The opposition claims to have suffered electoral fraud and murder at the hands of supporters of Mr Aristide, a former priest. It quickly accused the government of staging the whole thing to distract attention from the president's falling popularity, and as a pretext to attack it. But, says Lylianne Pierre-Paul of Radio Kiskeya, an independent station, “Both the government and the opposition always try to manipulate the press. There is not enough information to support either theory.” The truth remains somewhere in the shadows.

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India and Pakistan

Who will strike first?

Dec 20th 2001 | DELHI AND LAHORE
From The Economist print edition

The attack on India's Parliament has posed difficult questions for both Atal Behari Vajpayee and General Pervez Musharraf

Get article background

THE Bush doctrine apparently encourages countries that are victims of terrorism to defend themselves by going to war. But what if the two countries involved are nuclear powers? India is wrestling with that question after an attack on its Parliament on December 13th in which nine Indians were killed. Many more, including some senior politicians, would have died if the terrorists had not been stopped before they could detonate their bomb. Speaking to Parliament on December 18th, India's home minister, L.K. Advani, blamed Pakistan for “the most audacious” and “the most alarming act of terrorism” in two decades. He did not say what India would do about it. Unlike the United States after September 11th, India appears to have little appetite for war.

For now, it is still betting on diplomacy. India is gathering evidence against two Pakistan-based groups fighting Indian rule in Kashmir, Lashkar-e-Taiba and Jaish-e-Muhammad. They are backed by the military Inter Services Intelligence agency (ISI), India claims. It has sent details to several countries, including Pakistan. Demands have been made: Pakistan must shut down the two groups, arrest their leaders and cut off their finances. Both groups deny the charges. Pakistan, a central ally in the American-led war against al-Qaeda, is admitting nothing. There is little sign yet that diplomacy will work.

Will India's prime minister, Atal Behari Vajpayee, then move on to war? The pressures for doing so are strong. His party, the Bharatiya Janata Party (BJP), is hawkish by instinct. The BJP-led government in Uttar Pradesh is up for re-election early in 2002. Most important, perhaps, is that failure to retaliate could be seen as an admission that India is not a first-class power capable of answering terror with force. Mr Vajpayee appeared to question American calls for calm, saying, “We have exercised enough restraint.”

But the arguments against military action are compelling. For one thing, India has not been wounded nearly as badly as America on September 11th. Shocking as the attack was, Indians are used to small-scale carnage. “If the casualties had been higher, the reaction might have been different,” said an Indian official.

Nor is it clear what useful military action India could take. Toppling Pakistan's military-led government is unthinkable. Even if India had the power to do it, any successor would probably be worse. The most talked-about option is a raid on terrorist camps in the part of Kashmir that Pakistan controls. But they are easily rebuilt and all available methods for attacking them are risky. India's bombs and artillery are not accurate enough to hit the camps from afar. A small ground expedition might be wiped out by Pakistan's army, now on high alert. A less risky tactic might be “hot pursuit” of guerrillas as they flee across the “line of control” that divides Indian-controlled Kashmir from Pakistan's side. Ex-generals have been emphasising the dangers, the greatest of which is escalation. “We're just strategically boxed in” by Pakistan's nuclear weapons, says Kanti Bajpai, a professor at Jawaharlal Nehru University in Delhi.

India's friends among the big powers may offer an escape. America was slow to issue its usual call for Indian restraint; after bombing Afghanistan, that would have sounded hypocritical. Yet it is nervous about a situation that, said the secretary of state, Colin Powell, “could spiral out of control”. Western pressure on Pakistan's president, Pervez Musharraf, hitherto a stalwart ally in America's fight against

terrorism, may be the only alternative to the ultimatum that India is reluctant to issue. The winding down of the war in Afghanistan and General Musharraf's weathering of domestic opposition to it make it easier for America and others to push him.

How far he can be pushed is uncertain. He had already begun a cautious crackdown on extremists, starting with those who cause trouble at home. The newly appointed head of the ISI had told groups operating in Kashmir to become less conspicuous: Lashkar-e-Taiba has recently removed the signboard from its offices near Lahore. But to close them down would take more courage than it did to abandon the Taliban. People close to General Musharraf claim he is furious about the December 13th attacks, which could force him to choose between a showdown with India and one with the anti-Indian militants. Either could stir up opposition to his rule, perhaps even within the army.

If he dares comply, General Musharraf will demand a price: agreement from India, perhaps, to negotiate over Kashmir. A fitful peace process had already started to stir. The Indian government had offered talks with separatist Kashmiris. Mr Vajpayee was thinking about meeting General Musharraf at a regional summit in January. That meeting is now off, but contact could resume if the general acts against terror. Mr Bajpai of Jawaharlal Nehru University thinks America will try to overcome Indian objections to some sort of mediation, which Pakistan has long sought. Perhaps, but India is in no mood for compromise and General Musharraf may feel he has risked enough already. Talk of war could easily return.

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Indian textbooks

Cows and votes

Dec 20th 2001 | DELHI
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Rewriting history for schools

AP

History in the remaking

HISTORY, as Murli Manohar Joshi, an Indian minister, is discovering, can be a cause of trouble in politics. He says—oddly, in the circumstances—he feels he is being crucified “like Jesus Christ” because of his view of Indian history.

As the minister responsible for what is called “human-resource development”, he has a say in the contents of school textbooks. His critics say he is “Talibanising” education by demanding that the books should glorify Hindu India. According to the Joshi school of scholarship, the Aryan race is indigenous to India. It did not arrive, as mainstream historians assert, from the Caspian region around 2000BC. The change in the texts that has grabbed the headlines, however, is the deletion of references to a custom followed by ancient Hindus of providing important guests with beef. For centuries cows have been sacred to Hindus.

Mr Joshi blames Romila Thapar, a historian, for the beef-eating blasphemy. He says she is one of a Marxist-sympathising group of historians who have given India's textbooks an anti-nationalist slant for the past 30 years. Miss Thapar acknowledges that her generation of historians came from the political left but says their views reflect their background in the social sciences more than their politics. She accuses Mr Joshi of wanting to take history “back to nonsensical fantasy”.

The objectionable passages, and others that upset religious minorities like Jains and Sikhs, have been deleted from the books issued by the National Council of Educational Research and Training. New ones are being written to fit in with a curriculum that will be based on Indian patriotism. Individual states choose their own textbooks, but many simply adopt those issued by the council, which also directly controls some government schools. India's main schools' examination board has ordered that the unauthorised version of events cannot be taught and, if children offer it in exams, they cannot be credited with marks.

Mr Joshi and his supporters in the Bharatiya Janata Party, the main component of the ruling coalition, together with the extremist Rashtriya Swayamsevak Sangh, of which he is a member, want to turn India into a Hindu-nationalist country. The Congress party, proud of its secular traditions, might have been expected to oppose the changes. So far its leaders have been lamentably reluctant to do so.

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Hong Kong

The people's choice

Dec 20th 2001 | BEIJING
From The Economist print edition

That's not Tung Chee-hwa

HONG KONG'S unpopular chief executive, Tung Chee-hwa, has no need to worry about his newly launched campaign to serve for another five years as the territory's leader. He is more than likely to be the only candidate when the nomination procedure ends in February. Even should it be necessary to convene the 800-strong election committee next March to select the next chief executive, as scheduled, China's leaders have openly endorsed his re-election bid and few of the committee members would dream of defying China's wishes.

Mr Tung will still go through the motions. He has set up a campaign office, and in the next few weeks he will try to persuade the public that he is not so bad after all, and that, with the help of change in the political structure and a global economic recovery, the next five years will be better than the last five. Public attitudes count for little: the election committee consists mainly of undemocratically chosen members of Hong Kong's elite. But Mr Tung would rather not start his new term with the kind of popularity rating suggested last week in a survey by a team of academics known as the Hong Kong Transition Project. It found that only 16% of the 759 adults polled in early November wanted Mr Tung to stand for a second term.

The political changes Mr Tung is planning will not usher in democracy. What he has in mind is an “accountability system” whereby political appointees on short-term contracts will be given overall responsibility for the running of the government's main departments. The intention is to end Hong Kong's practice of having career civil servants as the chief public champions of government policy, with no one obvious apart from Mr Tung to take the blame if policies go wrong.

Some politicians in Hong Kong question whether the quasi-ministerial set-up, which could be in place by the middle of next year, will do much to help. The people in the new posts will be appointed by Mr Tung, not elected. The legislature may call for resignations if policies fail, but it will not have the power to block appointments or secure anyone's removal.

Even if Mr Tung's critics wanted to, they would have little chance of standing against him. Candidates must be nominated by 100 members of the election committee. The pro-democracy sympathisers on the committee number about 100 at the most, and they are too divided to put forward anyone with a chance of getting the required backing. The only kind of competition that Mr Tung might perhaps face would be in the form of a no-hoper encouraged by China to stand for appearances' sake. But President Jiang Zemin made it clear last week that Mr Tung was a shoo-in. “I wish him to get re-elected. And I believe he will be re-elected,” he said.

According to Hong Kong's mini-constitution, the Basic Law, the territory's ultimate aim is to have a chief executive and legislature elected by universal suffrage. Public debate over this will intensify during Mr Tung's second term, which will end in 2007, the earliest year in which such a reform is possible under the Basic Law. But nothing more than cosmetic change should be expected even then. “If there is no genuine democracy in China, you can't expect to have genuine democracy in Hong Kong,” says Professor Joseph Cheng of Hong Kong's City University.

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Contamination in Bangladesh

A nation poisoned

Dec 20th 2001
From The Economist print edition

Scientists have offered a solution to the arsenic wells

MORE than 10m wells were sunk in Bangladesh and the Indian state of West Bengal in the 1980s and 1990s so that people could stop drinking dirty surface water. Now, however, it seems that the water in many of these wells has been contaminated by arsenic in the surrounding rock. Between 35m and 77m people are thought to be drinking this water. The skin lesions that come from prolonged exposure to arsenic are already evident on the hands and feet of many villagers. It is “the largest mass poisoning of a population in history”, according to a report published by the World Health Organisation last year. In some places, arsenic exposure is 50 times what it deems safe.

Scientists from Bangladesh, Britain and the United States bent their minds to the problem at a conference in November at Columbia University in New York. The scores of experts included epidemiologists, hydro-geologists and geochemists. Drilling deeper wells is one option they favoured. The ground below 150 metres (500 feet) deep is said to contain much less arsenic. A careful survey might find places where pure water could be drawn from shallow, and therefore cheaper, wells. Other possibilities proposed were the distribution of water filters, and making better use of the region's abundant rainfall.

The main requirements, it was suggested, were political will and, of course, money. The cost of digging the original contaminated wells over the course of some 20 years was around $500m, much of which was provided by the United Nations Children's Fund and various development banks. To drill a significant number of deeper wells could cost twice that. Though donors would blench, the scientists at the Columbia conference argued that the money would immeasurably improve the lives of a huge number of people. Apart from disfiguring the skin, after two decades arsenic poisoning has a high risk of causing fatal cancer in the lungs, liver, bladder and kidneys.

This seems to be a rare instance in international aid work where research is ahead of implementation. “Our biggest impediment has been raising financial resources,” says Vanessa Tobin, who runs the UN Children's Fund's clean water programme. But how can the money be raised? The World Bank allocated $40m three years ago towards solving the arsenic problem but, it seems, there is little to show for it so far. The Fund, which is already stretched thin throughout the world, has only a modest “remediation” operation in place in the affected areas. No money can be expected from Bangladesh itself, which is one of the world's poorest countries.

America is, as always, the obvious source of aid. The Bush administration may not be in a generous mood, and has not exactly burnished its environmental credentials of late: indeed, it recently tried (and failed) to raise the allowable level of arsenic in America. But the people affected by the arsenic in Bangladesh and West Bengal are mostly Muslims, a group Mr Bush has sought to get on his side in the fight against terrorism. A big donation might be no bad public-relations move.

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South Korea

The snags about paradise island

Dec 20th 2001 | JEJU
From The Economist print edition

A plan to create Korea's Singapore

THE southern island of Jeju—Cheju, it was called until recently—would, the South Korean government believes, make a splendid centre for international business and tourism. It has drawn up ambitious plans designed to delight foreigners. Under a new law, visitors from 173 countries will be allowed visa-free entry to the island. Taxes will be waived for foreign investment and for shipowners who register vessels there. Golfers using any of dozens of golf clubs on the island will receive a 50% discount on normal fees. Koreans too have not been forgotten. They will be allowed to use the duty-free shops.

The plan to transform the volcanic island into an international city like Singapore or Hong Kong, where people, goods and capital move freely, requires 4.7 trillion won ($3.6 billion) of public money in the next ten years. If all works out, the government expects the island to attract 9m tourists, including 1m foreigners. It helps that the island is already popular. This year it had 4m visitors. A World Cup football match between China and Brazil, due to take place at the Jeju stadium next spring, is expected to attract at least 20,000 Chinese fans, and other big matches will be staged there.

All these schemes should help to increase the income of the 540,000 residents of Jeju, who on average earn less than South Koreans in other parts of the country. A sharp decline in the price of tangerines, one of the island's main farm products, in the past two years has contributed to rising household debt.

There are possible snags. One is that so far no foreign investment has been promised towards the cost of the scheme. That may change in due course, though. More important, the people of Jeju are not all that keen on ousiders. Many are worried that in the end Jeju will be crowded with golfers and shoppers interested only in seeking bargains at duty-free shops.

Inevitably, it is said, that will make the locals even more hostile towards the mainlanders. Such hostility dates back to 1948 when the Korean army and police quashed an uprising on Jeju, killing tens of thousands of civilians who they claimed were communists. One in every five people living there lost a family member. The wound remains. Koreans have long memories.

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Israel and the Palestinians

Sharon's strategy, if he has one

Dec 20th 2001 | JERUSALEM
From The Economist print edition

Getty Images

First, Ariel Sharon wants to get rid of Yasser Arafat. Then what?

Get article background

WHAT, indeed, is Ariel Sharon's long-term aim? Peace-seeking members of Israel's Labour Party are calling for their party to leave the national unity government on January 17th, when the party's Central Committee is to debate the issue. The army, say these doves, is deliberately trampling on the shrinking vestiges of Palestinian sovereignty, while the prime minister offers the Palestinians no political way out, just continued subjugation.

In the National Union-Israel Our Home faction, at the other end of Mr Sharon's coalition, many members want to get out right now. The army is not doing enough to smash the Palestinian Authority (PA), contend these ultra-hawks, and the prime minister is too soft on them politically.

However, the leader of the National Union, the tourism minister Benny Elon, says he sees no reason to leave. “The government is in effect implementing our party's policy,” he said on December 16th. “Why should we quit?” The National Union's policy, formulated by the party's long-time leader Rehavam Zeevi, who was killed by Palestinian gunmen in October, calls for Israel to “encourage” the Palestinians to leave Palestine and “transfer” themselves somewhere else.

Is that Mr Sharon's goal too? Certainly, some of Israel's doves think it is. The prime minister's aides argue that he does not need to respond to Mr Elon's transparently provocative comment. He wants negotiations with the Palestinians, they say, “but Yasser Arafat is not the man to negotiate with. He has chosen a strategy of terror.” This strategic choice, they claim, was made in 1993, at the start of the Oslo peace process. Mr Arafat built up shadowy armed groups alongside the official police, and these groups now conduct “terror” against Israel. Hamas and Islamic Jihad, although ostensibly beyond his influence, carry out their terror with his indirect sanction. “We hope someone else will succeed him who is more moderate, who will abandon terror,” say Mr Sharon's men.

Having declared Mr Arafat “irrelevant” by cabinet fiat on December 6th, Mr Sharon felt no need to respond to the Palestinian leader's dramatic broadcast in Arabic on December 16th ordering “a complete stop to all armed activities, especially the suicide attacks that we condemn always.” Israeli officials remained sceptical as Palestinian policemen invited the local and foreign press to watch them lock and seal dozens of Hamas and Islamic Jihad offices and social centres.

Instead, Israeli troops and secret-service units intensified their own round-ups of Palestinian militants, crashing into areas theoretically controlled by the PA with tanks and armoured personnel carriers almost as a matter of course. Six PA policemen were shot dead in one such search-and-arrest raid on a West Bank village on December 14th. Palestinian witnesses insisted there was no armed resistance before the killings.

Mr Sharon's policies are not necessarily those of the late Mr Zeevi, but neither are they designed to reconstitute the shattered peace process. The prime minister still demands a seven-day period of total quiet, with “no violence and no incitement” before talks can begin on a lasting ceasefire, and on the other measures, including a freeze on settlement-building, that were recommended by an international commission earlier this year.

In the longer term, he envisages Israel retaining large swathes of the West Bank, leaving the Palestinians with a truncated and cantonised “state” dotted with Israeli settlements. Outsiders, including the Americans, were long inclined to concur with Israeli doves in doubting Mr Sharon's desire or intention to reach the ceasefire and thus trigger the settlement freeze, let alone resume talks on a permanent agreement. But, since September 11th, American public opinion has grown impatient with all aspects of Arab terrorism.

Mr Arafat's televised address on December 16th, with Israeli tanks parked 300 yards from his office in Ramallah, suggests that the Palestinian leader belatedly recognises how precarious his condition has become. His talk may have been just in time to restore him to international “relevance”. The Americans, though demonstratively recalling their peace envoy, Anthony Zinni, for consultations that will last into the new year, welcomed the speech—if the “constructive” words are to be acted on. If they are, Mr Sharon may be held to the pledge that Mr Bush extracted from him earlier in the month to refrain from any action against Mr Arafat personally.

Israel's finance minister, Silvan Shalom, a member of Mr Sharon's Likud party, dismissed the speech as bluff, and predicted, on December 17th, that the cabinet would soon be discussing deporting Mr Arafat from Palestine. He may well have reflected his leader's subliminal desire. But, for the moment at any rate, it is his words that are bluff. Cooler voices in Israeli intelligence believe that Mr Arafat's unwonted international isolation has produced a new determination to face down the Islamist factions and rein in his own hard men. Both Colin Powell, America's secretary of state, and Jacques Chirac, France's president, telephoned Mr Sharon on December 18th to ask him to give Mr Arafat the space to act.

But Mr Sharon maintained that there had been no let-up in Palestinian violence: three Israelis had been injured in shooting attacks. Mr Arafat, for his part, pointed to three Palestinian deaths in the 24 hours after his speech, one a 12-year-old boy holding a toy gun. This, he said, was Mr Sharon's real response.

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Guinea-Bissau

Yalla's follies

Dec 20th 2001 | BISSAU
From The Economist print edition

Did the president fake a plot against himself?

Reuters

Tribal elder in trademark hat

IT SOUNDED like an ordinary sort of attempted coup. On the radio, a minister denounced “a conspiracy to destroy our democracy and kill the head of state”. Reports were heard of nocturnal troop movements, as the coup's ringleaders were outflanked and arrested. The government promised swift action to neutralise hostile elements, and appealed to MPs to stand by their president, Kumba Yalla, in his hour of peril.

But none of it rang true. When the interior minister briefed the people of Guinea-Bissau on the disaster they had narrowly escaped early this month, opposition leaders demanded proof. Human-rights groups asked for the names of those detained. The government supplied few details. Cynics muttered that it had all been staged to distract attention from Mr Yalla's increasingly wayward presidency.

A former schoolteacher and opposition firebrand, Mr Yalla was elected to heal the wounds of this small West African country, scorched by civil war in 1998 and 1999. He won an impressive 72% of the vote early last year, after promising a new beginning and an end to corruption. The public had grown sick of graft under the PAIGC, the party that had led the struggle against the Portuguese colonists and then stayed in power for 25 years, first trying to build a socialist state, then trying half-heartedly to reform it. Mr Yalla seemed different. He portrayed himself as a tribal elder in a red bobble hat who was going to clean up politics and improve people's lives.

But a recent series of public rows and gaffes has sapped Mr Yalla's prestige and raised serious questions about the country's future. When MPs thwarted him, Mr Yalla threatened to suspend parliament for ten years. As part of a vigorous but diffuse anti-corruption drive, he promised to sack 60% of the civil service. After an impromptu visit to the foreign ministry, Mr Yalla dismissed his foreign minister, Antonieta Rosa Gomes. Two newspapers have been suspended, and two radio stations have received cautions. Senior judges are in detention, accused of misappropriating funds. Charitable diplomats call the president's behaviour “erratic”. Mr Yalla's enemies put it more strongly than that.

Guinea-Bissau can ill afford all this. Even before the civil war, it was one of the poorest countries in Africa, whose fortunes fluctuated with groundnut prices. The government is desperate to woo back investors, and has drawn up a list of state-owned firms to privatise.

But the short-term prognosis is bleak. Guinea-Bissau's main industrial belt is a wasteland of derelict factories and broken machinery. Diplomatic representation is limited to a handful of embassies. America and others say they will return only when there is political and military stability, something that Mr Yalla now looks unlikely to deliver.

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Somalia and terrorism

Who is using whom?

Dec 20th 2001 | BAIDOA
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A useful anti-terrorist pretext

AFTER its misadventures in 1993, when American marines were driven out of Somalia by skinny gunmen, America has used a long spoon in supping with Somalia's warlords. This, like so much else, changed on September 11th. On December 9th America sent a clandestine mission to talk to a collection of Somali warlords, who like to claim that their country, in particular their UN-sponsored government, is overrun with terrorists.

Clandestine, up to a point: within hours of the arrival in Baidoa of nine closely cropped Americans sporting matching satellite phones and shades, their activities were broadcast. After meeting various warlords, the group inspected a compound that had apparently been offered to them as their future base. They also saw an old military depot. Neither can have been encouraging: the compound has been taken over by war-displaced families, and the depot by thorn-scrub.

America was already convinced of al-Qaeda's presence in Somalia. It had listed a Somali Islamic group, al-Itihaad al-Islamiya (Islamic Unity), as a terrorist organisation. It had also forced the closure of Barakaat, Somalia's biggest banking and telecoms company, which handles most of the remittances that Somalis working abroad send back to their families. It fears that lawless Somalia could become a haven for escapees from Afghanistan. The American navy is currently patrolling the country's long coastline, while spy planes are said to be criss-crossing the heavens.

According to Abdullahi Sheikh Ismail, the acting chairman of the loose alliance of warlords who control most of Somalia and are based in Baidoa, there are “approximately 20,480 armed extremists” in Somalia and “85% of the government is al-Itihaad”. With a little bit of help, he told his American visitors, he would be ready “to liberate the country from these evil forces”. America had already heard as much through its embassies in Nairobi and Addis Ababa, which maintain contact with the warlords, and from Ethiopia.

The warlords are supported by Ethiopia, which has a historical fear of a strong Somalia, in a bid to oppose the government. But their differing views on where to strike at the “terrorists” reveal that their individual ambitions are even sharper than their dislike of the government.

Mr Ismail says that Merca, which is claimed by his Rahanwein clan, is the capital of terror. Muhammad Hersi Morgan, known as the “butcher of Hargeisa” because he once razed that town to the ground, says an al-Itihaad camp on Ras Kamboni island is still active. The UN says there is only an orphanage there now. But the island is close to Mr Morgan's home town of Kismaayo, which he failed to capture from a pro-government militia in July, and he is determined not to fail again.

None of this looks good for Somalia's official president, Abdiquassim Salad Hassan, whose government is in control of about half the capital, Mogadishu. He has formed his own anti-terrorism unit, and invited America to send investigators, or even troops. America, armed with stories about the presence of al-Itihaad members held back, but on December 18th sent an envoy to Mogadishu.

Both Mr Hassan and the UN say that al-Itihaad is not a terrorist organisation. It emerged as an armed force in 1991, battling for power in the aftermath of Siad Barre's fall. It had some early successes, briefly

taking Kismaayo. But it was always dependent on the blessing of its members' clan elders. When the elders eventually called their fighters back, a hard core of Islamists fled to the Gedo border region where, in 1997, they were crushed by Ethiopian troops. Al-Itihaad subsequently infiltrated Somalia's business class, and now runs Islamic schools, courts and clinics with the money it has accumulated.

The Baidoa alliance plainly hopes to be supported as proxies in a fight against “terrorism” and the Mogadishu regime. But the latest intelligence leaks suggest that the first reports may have overestimated al-Qaeda's presence in Somalia. Nor would Mr bin Laden and his henchmen find it easy to lie low in an oral culture that considers rumour-mongering to be a form of manners. Even so, the warlords seem to believe that they have won some promise of help. Soon after the arrival of the American group, they pulled out of the peace talks they had been holding with their government in Nairobi.

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Madagascar's presidential election

Will the yoghurt tycoon take over?

Dec 20th 2001 | ANTANANARIVO
From The Economist print edition

Life is getting better, but voters have begun asking for more

EPA

Greetings from the purveyor of all good things

EXCITEMENT is in the air in Madagascar, a vast island of 15m people off the east coast of Africa. On December 16th its voters trudged to the polls from their homes in highland towns and remote forest villages to pick a president. Many favoured Marc Ravalomanana, a tycoon who is also the handsome young mayor of the capital, Antananarivo. In a high turnout, he took nearly 80% of the votes in the capital, and well over half in other cities. Results from the less susceptible countryside are slowly coming in. They narrow the gap, but he still seems to have a chance of either beating the incumbent, Didier Ratsiraka, outright or facing him in a run-off next year.

As mayor, Mr Ravalomanana won many citizens' hearts by cleaning up the capital, and seeing to new roads and street lighting. He oversaw a building boom, the rise of a dozen flashy new supermarkets, more policemen on the streets and a cut in crime. He is known in the country at large, too, thanks to his Tiko food empire, which delivers yoghurt and other good things to Madagascar's emerging middle class. His face is everywhere on T-shirts, baseball caps and bags—all part of a slick campaign that was helped along by his own radio and television stations. His Christian fervour, and his job on a council of Protestant churches, have also helped him, especially among the rural poor.

The rise of a tycoon who is fond of America and South Africa, and who prints English slogans on his bottles of milk and mineral water, is a snub to Mr Ratsiraka. The president, who has dominated politics since 1975—with a few years' absence in the mid-1990s—steers close to France, the former colonial power. He has been unwell, and spends much of his time having medical treatment in Paris. His government, predictably, is accused of widespread corruption. But he offers stability—and declares that “any other president” would usher in years of uncertainty.

Mr Ratsiraka might indeed feel aggrieved if he did lose power just as the economy is coming right. After a two-decade spell as a socialist, then a few years of exile, he bounced back into the presidency in 1996 to impose austere neo-liberal reforms. These are now paying off. Many people are still desperately badly off, living in villages without roads, electricity or doctors. But, according to an optimistic IMF report on December 13th, the economy may turn out to have enjoyed 6.7% growth this year and inflation is low.

A swelling flow of tourists comes to the island to see its rainforests, lemurs and tropical beaches. Sales of textiles to America are doing well, thanks to tariff reductions there. And, in the past few years, Asian investors have opened dozens of factories in special export zones around the capital. Mr Ratsiraka has managed to negotiate debt relief that almost halves the amount the country spends on servicing its debts. It is thus able to spend a bit more on schools and hospitals. Incomes in the cities are clearly up. A good rice harvest this year, and the absence of cyclones, has eased hunger in the countryside.

All this is rare good news for Africa. Might it be risked if there were a change of president? Some point to possible ethnic tension: Mr Ravalomanana is from the highland Imerina people, who have a mix of Asian-settler and African blood, who have never before held political office over the blacker coastal communities. Others worry that he will have little support in parliament, and that his business career has not prepared him for political compromises. A bigger concern, perhaps, is that he might not seriously undertake to spread the good times enjoyed in the capital into the impoverished countryside.

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The European Union summit

From the sublime to the cantankerous

Dec 20th 2001 | LAEKEN
From The Economist print edition

Visionary federalists, doughty nationalists and acrimonious hagglers—often one and the same in the European Union

THE contrast between lofty ambitions and squalid political bargaining is often striking in the European Union, but the EU's grandees really excelled themselves at their summit in a suburb of the Belgian capital last weekend. On the one hand, they issued a grand declaration on the Union's political future, promising big political changes that may culminate in a European constitution. On the other, they ended their meeting with a bad-tempered and inconclusive haggle about the siting of various European agencies. If Europe's leaders cannot reach agreement on their trivial housekeeping arrangements, the prospects of harmonious consensus over the details of a constitution look poor.

The “Laeken declaration” on Europe's future has at least set the agenda for a constitutional convention that will get going next March. Some 100 delegates will draw up proposals to be considered by the heads of government of the EU's 15 existing members in late 2003 or 2004. The idea is for a year-long public constitutional debate to produce a coherent document commanding broad popular support.

Unappetising items on the Laeken menu

Deals that came unstuck, claims that lacked substance

- The EU declared its much-vaunted **rapid-reaction force** “operational”, but **Greece** refused to accept an agreement between the Union and **Turkey** to give the EU assured access to NATO assets. In any event, few generals believe the force will actually be battle-ready for months or even years.
- Louis Michel, **Belgium's** foreign minister, managed to confuse military matters still more by declaring that the **British**-led peacekeeping force in **Afghanistan** would be **“an EU force”**. He later had to issue a “clarification”, acknowledging that it would be no such thing.
- As well as disagreeing about the share-out of EU agencies, Europe's leaders failed to cut deals on a **community patent** and on a proposed **Galileo satellite system**. The first was stymied by a row over which languages patents should be issued in, the second by an argument over cost.

Although in the end it will be for the convention's participants and then for national leaders to decide where Europe should be going, the battle lines are already becoming clear. A strong camp of federalists will push for “ever-closer union” across a range of subjects, including foreign policy, taxation and the selection of a European president (by direct election). But “nation-statists” will try to use the convention to limit and perhaps even cut back the EU's powers.

Both camps can draw some comfort from the declaration at Laeken. The British, always wary of ceding more power to the EU, were pleased that it gave warning against the creation of a “European superstate” and even explicitly posed the possibility of giving some powers back to national governments. But the summit's Belgian hosts, federalist as ever, plainly thought the debate had moved their way. Guy

Verhofstadt, Belgium's prime minister, said the declaration had broken several “taboos” by placing various items on the menu: the direct election of a European president, a European constitution and a legally enforceable Charter of Fundamental Rights to underpin it.

The convention's structure, approved at Laeken, should favour the integrationists. Its chairman will be Valéry Giscard d'Estaing (see article), an elderly ex-president of France, who has long promoted the “community method”, EU-speak for giving more responsibilities to the European Commission in Brussels and reducing the powers of individual states to veto EU decisions. His two deputies—Giuliano Amato, a former Italian prime minister, and Jean-Luc Dehaene, a former prime minister of Belgium, are also both keen federalists. Both recently signed a “wake-up call for Europe”, written by Jacques Delors, a former commission president, which called for much closer political union. The convention will merely propose “options” for reform. But it will also show which options it likes best, and they are likely to be federalist ones.

Still, the nation-statists may find the balance swinging back to them when the EU's leaders have to ponder the convention's conclusions. Any new treaty will have to be agreed on unanimously—and a sturdy bunch of countries are likely to be edgy about a document pressing strongly for more integration. The British, the Danes and the Swedes, who are all staying out of Europe's single currency for the time being, tend to lead this camp. But the Irish government, too, is warier of European integration these days, since Ireland's voters rejected the latest European treaty (signed a year ago in Nice) in a referendum in June. And Italy, usually regarded as slavishly pro-European, has also become less predictably integrationist under Silvio Berlusconi, its new prime minister.

It was Mr Berlusconi's antics which ensured that the summit at Laeken ended in acrimony. The Italian prime minister arrived in a bad mood, having been forced to climb down earlier in the week over Italy's objections to a European arrest-warrant. So when he heard that most of the other countries wanted to award the new European Food Safety Agency not to Parma in Italy but to Helsinki in Finland, he exploded. Refusing to withdraw Parma's candidacy, he denounced the Finns for not appreciating the delights of Parma ham and cheese. “They don't even know what prosciutto is,” he is reported to have said. “I cannot accept this.” Earlier France's president, Jacques Chirac, is said to have made off-colour remarks about the Finns' taste for reindeer, and suggested that Sweden would be a good site for a “model agency” since the country had “such pretty women”. With Europe's Madisons and Jeffersons on such fine form, Mr Verhofstadt swiftly drew the summit to a close.

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Portugal

A servant for all seasons required

Dec 20th 2001 | LISBON
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His party's defeat in local elections has brought down the prime minister

Reuters

Durao Barroso thinks he can do the job

A JOB vacancy has opened unexpectedly in Portugal. Wanted: a prime minister for all seasons. Previous incumbents: Antonio Guterres (1995-2001), a modernising Socialist who inspired confidence and spent freely in boom times but evaded decisions in tougher ones. Before him, Anibal Cavaco Silva (1985-95), a hard-headed conservative who brought political stability and disciplined public finances, but won few hearts with his crisp, technocratic style. Portugal's voters will be back at the ballot boxes this spring, trying to recruit an all-rounder, a man they can both respect and like, in bad times as in good.

They handed Mr Guterres his notice in local-government elections on December 16th. Pollsters had said his centre-left Socialists would do badly. They did worse, losing a majority of municipalities, including most big cities. The centre-right Social Democrats overcame well-known incumbents in Socialist strongholds like Lisbon and Oporto, to the surprise even of those who defeated them.

Mr Guterres accepted the defeat as a vote of no confidence, and offered his resignation. President Jorge Sampaio has to make soundings before deciding what to do now, but few doubt that he will dissolve parliament and call a general election early next year. He could ask some other Socialist to form a new government, but that probably would not work: the party is one seat short of an overall parliamentary majority, and Mr Guterres has no clear heir-apparent within it.

He has already given up the party leadership. That should open the way for Antonio Vitorino, a close ally who is now the European commissioner in charge of justice. Eduardo Ferro Rodrigues and Antonio Costa, respectively ministers for public works and justice, may also be contenders for the top job.

It could be worth having. Many voters will plainly be happy to see Mr Guterres go. But the opinion polls reveal no great enthusiasm for Jose Manuel Durao Barroso, the Social Democratic leader, either. And even in these local elections, typically used by voters to punish governments without having to choose a new one, the Socialists in fact took more votes.

Why did the voters turn against Mr Guterres, who only a year ago was still riding high in the opinion polls that had shown him consistently popular during his first five years in office? The economy is partly to blame. Slower growth, hitting tax revenues, has brought sharp cuts in public spending in a series of emergency measures and budget amendments. The lack of a parliamentary majority also forced Mr Guterres to seek votes for legislation wherever he could find them: for some earlier budgets from the right-wing Popular Party, for tax and social-security reform from the Communists. He did not push ahead with his promised reforms of justice, health, education, the public administration and other services, being reluctant to take difficult decisions and tackle vested interests. He has been guilty of “abdication from decision-making”, says one critic.

Mr Durao Barroso claims there would be none of that from him. He plans to stand on a platform of fiscal rigour, to redress what he sees as profligate government spending. “It may make me unpopular in the short term,” he says, “but I'm confident we could turn things round in three or four years.”

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Germany's ex-communists

Reconquering the capital

Dec 20th 2001 | BERLIN
From The Economist print edition

The ex-communists may be getting into the mainstream of German politics

AP

Gysi gives them a puff

BARELY a decade after German unification, the direct successors of East Germany's communist rulers are poised to return to power in Berlin. The city-state's ruling Social Democrats, who also run Germany as a whole, and the Democratic Socialists, as the ex-communists now call themselves, are deep into negotiations to run the capital together, after the breakdown of the Social Democrats' talks with both the Greens and the Free Democrats, Germany's liberals.

A “red-red” state government in Berlin might not serve the national interests of the Social Democratic chancellor, Gerhard Schröder. It could make it harder for him to woo middle-of-the-road voters in the approach to next September's general election. It might also impede him in the Bundesrat, the chamber of parliament where the governments of Germany's 16 *Länder* (states) are represented.

But for the Democratic Socialists it might mark a joyful turning-point. Since unification, they have more than doubled their score in the ex-communist east, picking up between a fifth and a quarter of the vote in state elections there and nearly half in the eastern part of Berlin. But in west Germany, where the other parties have long treated them as a virtual pariah, they still get less than 2%. Now, by becoming part of the city-state government in Berlin, which straddles east and west, the party is hoping to win acceptance at last as a normal part of Germany's body politic, rather than be dismissed as a regional oddity, doomed to fade away as east and west grow closer together.

The ex-communists' entry into office in the capital could also help them form a new—and for Mr Schröder awkward—block in the Bundesrat. Hitherto, they have been represented in the second chamber only through the eastern state of Mecklenburg-West Pomerania, where they have shared power with the Social Democrats since 1998. Now their strength is likely to be boosted by their power-sharing not only in Berlin but also in Saxony-Anhalt, another eastern state, where the ruling Social Democrats may well team up with the ex-communists after a state election due next April. Since no single party has an absolute majority in the Bundesrat, the ex-communists' bargaining power in it would grow sharply.

Mr Schröder, who has done his utmost to stop a red-red coalition taking shape in Berlin, is trying to limit the damage by ruling out the prospect of his party joining forces with the ex-communists in national politics. But his efforts have been badly undermined by a former Social Democratic chancellor, Helmut Schmidt, who predicted this week that “the reformed communists” would be in a federal government before the decade is up. And Gregor Gysi, the Democratic Socialists' persuasive founder, who now leads them in Berlin, has fanned the flames by declaring that, although a coalition between his lot and the Social Democrats was unlikely at next year's general election, “Things could look very different in 2006.”

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Hungary

Christians at odds

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From The Economist print edition

Politics is dividing one church, and laying snares for others

THE Calvinist Church of the Homeland, on Budapest's Szabadsag Ter (Freedom Square), is liberally spattered with Hungarian nationalist symbols. Its pastor, Lorant Hegedus junior, is no typical clergyman either. He divides his time between his church and the seat he holds in parliament for the radical-nationalist Hungarian Justice and Life Party. And in September he wrote an article for a party newsletter that was widely interpreted as calling for Jews to be expelled from Hungary.

The resultant furore, and Mr Hegedus's possible prosecution for inciting hatred, have exposed old tensions within the Hungarian Reform church, which claims the allegiance of almost a quarter of people in Hungary (and many ethnic Hungarians across the border in Romania). The church's ruling synod has denounced the article and banned active pastors from taking part in politics. That provoked the young pastor's most influential ally, his father, Lorant Hegedus senior, the reformed church's bishop of Budapest, to walk out. Long a fierce opponent of what he believes are closet communists within the church, the bishop fumed that the synod's behaviour had been “dictatorial”.

He is not alone. Prominent theologians issued an unusually forceful counter-blast to the younger Mr Hegedus's views when the controversy first broke. But since the synod's ban on political activity, ten pastors have said they would sooner remain on the Justice and Life Party's list of candidates for the election due next spring than continue in their religious posts.

Bishop Gusztav Bolcskei, the church's presiding bishop, insists heroically that it is not split. The problem, he says, is a few people in Budapest—not a stronghold of his church, which is much more influential in the country's east. Yet the church plainly holds a place in the hearts of Hungary's radical nationalist right. It flourished in 17th-century Transylvania (today mostly Romanian, but the fringe of what was then an autonomous principality is within Hungary), and it was long a bastion of feeling against Austrian Habsburg rule.

For some of its faithful, in the 20th century that tradition metamorphosed into a fierce anti-communist nationalism, combined with a dislike of Jews. Add the bitterness between those who felt oppressed by Soviet-imposed communist rule and those who chose collaboration, and a row one day was inevitable.

The row has had political echoes too. To Justice and Life's leader, Istvan Csurka—a Calvinist himself—the church is the true voice of “Hungarian” religion, a historic repository of national feeling, and he welcomes its role in the party. But some of his parliamentarians feel it has too much influence there, and see in Mr Hegedus's over-the-top views a way to make that point.

Not that the Calvinist church is the only one caught up in politics. Others, notably the Roman Catholic one, dominant in Hungary, are being wooed before the general election by right and left alike. The centre-right government of Viktor Orban, which would love a pre-electoral seal of conservative approval from them, has introduced new religious holidays and promised new state money for churches. A Calvinist himself, Mr Orban has carefully refrained from commenting on the Hegedus affair, and has not ruled out including the Justice and Life Party in a coalition after the election.

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Charlemagne

Valéry Giscard d'Estaing, Europe's draftsman

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France still wants to run Europe but these days isn't quite sure how

HE WILL be 76 in February: hardly the ideal man, you might think, to chair a body that will draft the constitutional arrangements for an enlarged, all-singing, all-embracing 21st-century European Union. But then Valéry Giscard d'Estaing is not just any old man or even any old distinguished man. Between 1962 and 1974, in two big bites, he was his country's minister of finance and the economy, one of the best in its 20th-century history (against modest competition, granted); and then, for seven years, its president. And he has a further advantage: he is French.

If any one country is to be credited with creating in the 1950s what is now the EU, it was—with all respect to the great German chancellor, Konrad Adenauer—France. Two Frenchmen, Jean Monnet and Robert Schuman, dreamed up the idea and pushed it. Jacques Delors, architect of the euro and the most dynamic president the European Commission has ever had, is French too. That, in French eyes, is how things should be. And probably will be. French EU diplomacy has a bulldozerish quality that leaves lesser breeds both aggrieved and admiring. At the EU summit in Laeken last weekend, as the Belgian host, Guy Verhofstadt, opened a discussion of who should head the EU's constitutional convention, Jacques Chirac broke in. France, he said, had just the man, Mr Giscard d'Estaing. What did others think of that? The agenda thus hijacked, others blinked, thought, and agreed.

France's ex-president will not feel alone in the convention's presidium of 12. At least one other member—Michel Barnier, the EU's commissioner for institutional reform—will be French. Pierre de Boissieu, a civil servant at the EU's Council of Ministers who happens to be related to Charles de Gaulle, may well dominate the secretariat that does the donkey-work. The commission's legal service is run by Michel Petite, from guess where.

All good Europeans, no doubt. But Frenchmen, like others, reflect their own political culture. So how does France see the EU's future? It is hard to tell. Britain opposes deeper integration, Germany fancies a federal Europe. The French seem to waver. They had a more federalist draft of the Laeken declaration watered down. To German talk of a “European federation”, they prefer a Gaullist “federation of nation-states”. Yet the EU's commitment to “ever-closer union” is as French today as it was in the 1950s.

France has long reconciled the Gaullist and the *communautaire* ideas of the EU by seeking to ensure that the Union serves French interests. The largest item in its budget is farm spending, seen from the start—and not only by cynics—as a deal whereby “German factories pay for French farms”. France promoted the single currency as a way to rein in German power after German unification. Despite de Gaulle, France has made less headway in promoting the EU as a counterweight to the United States or, recently, as a bastion of the “European social model” of a generous welfare state. But not for lack of trying.

France has been losing its grip on the EU agenda. The Franco-German partnership, the Union's motor for most of the past 45 years, has become less mighty, partly because it is harder for two countries, even two big ones, to lay down the law to 13 others than to seven, in the mid-1970s, or to their original four partners. The prospect of an EU swollen to perhaps 25 members by 2004 has alarmed the French, who see their power within it, and their influence over Germany, shrinking still further.

Faced with that prospect, French policymakers have argued for a more tightly integrated “hard core” of

EU countries, where the Franco-German alliance would still hold sway—and set the agenda for the rest. A variant of this idea appeared in *Le Monde* in June in an article by (among others) Pascal Lamy, one of the two French commissioners, and Dominique Strauss-Kahn, a former finance minister. Arguing that enlargement would clog up the EU's workings, they suggested that France should offer Germany a “strengthened union of two”, with joint meetings of parliaments and cabinets, committed to a model of “social solidarity and external independence” (ie, a strong welfare state and a less Atlanticist foreign policy). Once the big two had shown the way, other members of the euro-zone could be invited to join them. This idea, however, met a deafening silence in Germany. Even those Germans, including Joschka Fischer, the foreign minister, who accept the idea of a “core”, tend to mean one that would include all euro-users—and there are already 12.

What's to be done, then?

But if France can no longer control the agenda of an enlarged EU, what can it do to preserve its influence? One option would be to try to block enlargement. But that would antagonise Germany and others. An alternative might be a much warier attitude to deeper integration, in alliance with Britain. But that would be a big change—and much else in the British vision of the EU does not appeal to France: enlargement, economic liberalisation, and closeness to the United States. The third option, and the one that France seems to be pursuing most consistently, is to maintain support for integration while banking on French diplomacy to ensure that it still works in France's interest.

Mr Giscard d'Estaing (born, as it happens, in Germany) could help to that end. His record has its spots. As president, he aroused mockery when a nocturnal excursion was revealed by a 5am accident to the presidential car; and harsh criticism over a gift of diamonds from Jean-Bedel Bokassa, self-styled emperor, and alleged cannibal, of the Central African Republic. At finance, he cost France a bomb by launching some bonds whose value was tied in effect to gold—which at launch-date had a low, official price, but had soared several-fold by the time the treasury had to repay the bond-holders. Yet, in however *dirigiste* a framework, he also presided in 1969-74 over France's “second industrial revolution”. Even in his mid-70s, this is no lightweight. Nor, for all that he chose Mr Chirac as his first prime minister, would Mr Chirac now have chosen him if he were.

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About sponsorship

Peacekeeping

Just the job for us

Dec 20th 2001
From The Economist print edition

British soldiers have a fine reputation for keeping order in difficult places; still, there's much resistance to Tony Blair's plans for peacekeeping in Afghanistan

Get article background

ON A spring day in Kosovo last year, about 150 British peacekeepers managed to prevent an upsurge of ethnic violence in the town of Mitrovica by stopping a crowd of up to 20,000 ethnic Albanians from crossing the bridge to the Serb-dominated northern bank of the river Ibar. They used neither tear gas nor weapons, just a mixture of man-handling, moral pressure and what their commander described as “good scrumming”.

The British army is good at maintaining order in situations which are tense and volatile but fall short of outright war. It has learnt hard lessons from mistakes made on the streets of Belfast and the jungles of South-East Asia about how to manage relations with angry, suspicious civilians—and about the disasters that can ensue if the relationship breaks down.

At its most sophisticated, peacekeeping requires fine judgments about how much force to apply when facing down local bullies, and how and when to appeal over their heads to civilians. It involves controlling angry crowds without firing on them. It involves deliberate displays of vulnerability—for example, patrolling without helmets—in order to “build confidence” among civilians.

In Kosovo, the British have proved better at this than the French (who were often perceived as too pro-Serb) or the Germans (who did little to stop anti-Serb pogroms near Prizren), and more willing to take risks than the Americans (who were always constrained by the aversion to losing soldiers in non-essential wars). The Finns, Norwegians and Danes may be on a par with the British as peacekeepers, and the French can match Britain's ability to project force over a long distance, but the British are the only Europeans who can intervene at long range—and then turn into even-handed peacekeepers.

So what could be more natural than to follow the American-led coalition's military success with a dose of British-style peacekeeping? That was pretty much what happened in the Balkans—the model Tony Blair has been using to sell the Afghan intervention—and it has been elevated into a theory. First, force must be used—surgically, where possible. Then the benighted war zone must be turned into a “normal” place through economic aid and peacekeeping. While the initial phase requires American military might, the consolidation of peace is a task for which Britain's small but highly competent army is well-suited—or so the theory goes.

This idea bears some relationship to reality in the Balkans, but Mr Blair has had a harder time convincing people—in London, let alone Washington or Kabul—that the theory can work in Afghanistan. There are already signs of a retreat, in that the peacekeeping force seems to have been scaled back. Current plans for the total size of the mission (no more than 5,000) and the British contribution (no more than 1,500) and its duration (less than a year) are more modest than originally expected.

Donald Rumsfeld, the American defence secretary, has made no secret of his coolness towards the idea of a peacekeeping force that could get entangled with a military campaign that, for all its successes, is by no means complete. A similar note of caution has been struck by his British counterpart, Geoff Hoon, who is hearing muffled cries of protest from the military. The generals fear that a muddled mission in Kabul could spoil an unfinished war and cost British lives.

Sensing dissent, the Tory leader Iain Duncan Smith took the unusual step of breaking the bipartisan consensus which usually obtains when British forces are in harm's way. He expressed “deep misgivings” about the idea of a British-led peacekeeping effort being undertaken at a time when “search-and-destroy” missions by American soldiers, with some participation by British forces, were still in progress.

In practice, the peacekeeping mission will not be undertaken unless American concerns are assuaged. But even if the expedition succeeds in its limited tasks, it may mark the end of a chapter in British defence policy.

Ever since Labour came to power in 1997, its desire to do good in the world has meshed neatly with the defence chiefs' keenness to show off their skill as keepers of order in unruly places. But applying this British-designed model of peacekeeping to Afghanistan may be stretching it too far. In the Balkans, only a stone's throw from the contented stability of the EU, it was possible to argue that peace and inter-communal harmony were bound eventually to take root. In Afghanistan, such ideals are less well rooted, to put it mildly, in the political culture. That's a subject on which Mr Blair might care to consult Britain's greatest war leader (see article) before he gets stuck in too deep.

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Lessons from history

Spoil-sports

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Winston Churchill, who fought on the Afghan border in 1897, warned of the dangers of peacekeeping among the Pathans, and of mixing politics and war

“EXCEPT at harvest-time, when self-preservation enjoins a temporary truce, the Pathan tribes are always engaged in private or public war. Every man is a warrior, a politician and a theologian. Every large house is a real feudal fortress...with battlements, turrets [and] drawbridges. Every village has its defence. Every family cultivates its vendetta; every clan, its feud.

“The numerous tribes and combinations of tribes all have their accounts to settle with one another. Nothing is ever forgotten, and very few debts are left unpaid...The life of the Pathan is thus full of interest; and his valleys, nourished alike by endless sunshine and abundant water, are fertile enough to yield with little labour the modest material requirements of a sparse population.

“Into this happy world the nineteenth century brought two new facts: the breech-loading rifle and the British government. The first was an enormous luxury and blessing; the second an unmitigated nuisance. The convenience of the breech-loading, and still more of the magazine rifle, was nowhere more appreciated than in the Indian highlands. A weapon which would kill with accuracy at fifteen hundred yards opened a whole new vista of delights to every family or clan which could acquire it. One could actually remain in one's own house and fire at one's neighbour nearly a mile away...

“The action of the British government on the other hand was entirely unsatisfactory. The great organising, advancing, absorbing power to the southward seemed to be little better than a monstrous spoil-sport.

“The action of the British government on the other hand was entirely unsatisfactory”

“No one would have minded these expeditions if they had simply come, had a fight and then gone away again...But towards the end of the nineteenth century these intruders began to make roads through many of the valleys...All along the road people were expected to keep quiet, not to shoot one another, and, above all, not to shoot at travellers along the road. It was too much to ask, and a whole series of quarrels took their origin from this source...

“The Political Officers who accompanied the force...were very unpopular with the army officers...They were accused of the grievous crime of 'shilly-shallying', which being interpreted means doing everything you possibly can before you shoot. We had with us a very brilliant political officer...who was much disliked because he always stopped military operations. Just when we were looking forward to having a splendid fight and all the guns were loaded and everyone keyed up, [he] would come along and put a stop to it.

"My Early Life”, by Winston Churchill. Eland, £9.99 (Amazon.com), (Amazon.co.uk)

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Police

Bruising for a fight

Dec 20th 2001
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The police have always managed to thwart reformers

THE home secretary, David Blunkett, says he wants “dialogue not diatribe.” But all the signs point to a confrontation between the government and the police over what is arguably the last entirely unreconstructed public service. This week, the Police Federation, which represents 125,000 rank and file officers, warned ministers that they are planning to stage mass protest rallies.

That the police have begun waving their truncheons in defence of their privileged pay and conditions of service is unsurprising. For two decades they have successfully seen off one home secretary after another. The last one who tried to change their working practices was Kenneth Clarke in 1993. His successor, Michael Howard, beat a humiliating retreat on performance-related pay after the police staged a mass 20,000-strong protest rally at Wembley Stadium.

Mr Blunkett, urged on by the prime minister, appears determined to sort out the problem once and for all. Most people would agree that the main job of the police is to stamp out crime. But since 1989, the clear-up rate has dropped by more than a third. Police are now failing to clear up three-quarters of all crime being committed, the worst rate since records began. Only 9% of crimes result in some villain being convicted. Mr Blunkett has rightly described both figures as “appalling”. Overall, less than a fifth of burglaries, thefts and robberies are solved.

Some police forces perform particularly badly. In 1999, the Metropolitan Police, which is responsible for policing London, cleared up 27% of violent crime. Manchester and Merseyside's forces cleared up 62%. Even within the Met, there are startling differences. In Lambeth, the worst performing police district in London, the clear-up rate for robbery fell last year from 7% to 5% and for burglary from 8% to 6%.

The Police Federation blames inner London's startlingly poor clear-up rates on the paucity of police officers. It points out that in New York there are 126 officers per square mile compared with 32 in London. In Berlin, there is one officer for every 124 residents. In London the ratio is one to 285, in Manchester one to 376 and in Sheffield one to 545.

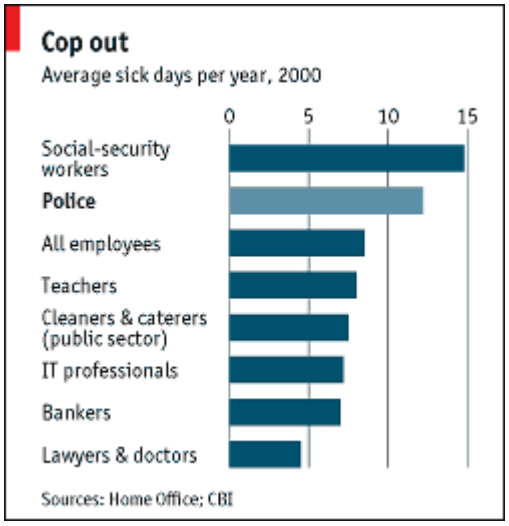
But lack of resources is only part of the story. Too many officers fail to report for duty claiming they are sick (see chart). Sickness rates vary widely. In Gwent, the police last year took an average of three weeks off a year, nearly twice as much as the hardier chaps in Humberside, where conditions are far tougher. A 1% cut in police sick days would put an extra 1,200 officers on the beat every day.

Another well-documented abuse is early retirement. Nearly a third of all officers retire on medical grounds and half of all officers retire early, at an estimated cost to the taxpayer of more than £1 billion ($1.45 billion). A Home Office study found that 77% of officers on Merseyside retire prematurely on medical grounds with enhanced pensions, five times as many as in Kent. Police officers facing disciplinary proceedings often seek to retire claiming they are ill, and chief constables use premature retirement to get rid of under-performers.

There are many other quaint “Spanish practices” ranging from meal breaks that always have to be taken in stations to dual patrolling. Even in safe areas officers insist on walking the streets and riding patrol cars in pairs. Cutting overtime, the introduction of auxiliaries and performance-related pay are other fraught

issues.

In his six months as home secretary, Mr Blunkett has acquired a reputation as a tough nut. It will serve him well in his dealings with the police.



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Bagehot

A great British nonsense

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Abandon oaths all ye who enter here

DO YOU truely and sincerely acknowledge, professe, testifie, and declare before god and the world, that our Sovereign Queen Elizabeth is lawfull and rightful Queen of this Realme, and of all other in her Majesties Dominions and Countries? And that the Pope neither of himselfe, nor by any authorities of the Church or See of Rome, or by any meanes with any other hath any power or Authoritie to depose the Queen, or to dispose any of her Majesties Kingdomes, or Dominions, or to authorize any forraigne Prince to invade or annoy her, or her Countreys, or to discharge any of her Subjects of their allegiance and obedience to her Majestie, or to give any license or leave to any of them to beare Armes, raise tumult, or to offer any Violence, or hurt to her Majesties Royall Person, State, or government, or to any of her Majesties Subjects within her Majesties Dominions?

Well do you? Bagehot is happy so to acknowledge, profess and testify. And although this column does not often start with an oath of allegiance, still less the splendid James Ist oath of 1606, it is better to be safe than sorry in these anxious times. It is after all only a week since David Blunkett, the home secretary, demanded an honest and open debate about British “norms of acceptability”, part of which debate is whether it would be right for immigrants (of which your “naturalised” columnist was once one) to swear an oath of allegiance to their adoptive country. Pending the said debate, neither the terms of the mooted oath nor the detail of the norms acceptable to the home secretary have yet been finally specified. Mr Blunkett is not personally keen on the idea of the oath but would like to enjoin newcomers to undertake to learn some English and to forswear unEnglish activities such as forced marriages and female circumcision. These practices Bagehot doth solemnly forswear.

If elected to Parliament, your columnist would also be only too happy to swear the oath of allegiance required in that place. That is to say (being a lapsed Jew as well as a naturalised immigrant) he would swear the oath as amended by the Jews Relief Act 1858. Since the British Parliament is not the nimblest legislature in the world, this act was passed more than a decade after it was first needed, when Baron Lionel Nathan de Rothschild, a Jew elected in 1847 to represent the City of London, was prevented from taking his seat because he refused to take the oath “on the true faith of a Christian”. Over time, however, Parliament has shown an impressive flexibility in order to allow both the faithless, and members of faiths other than the established one, to take their seats. The Roman Catholic Relief Act 1829, the Quakers and Moravians Act 1833, the Parliamentary Oaths Act 1866 and the Promissory Oaths Act 1868 have progressively chiselled away the direct religious content of the oath. New members are now required only to swear by Almighty God that they will be faithful and bear true allegiance to Her Majesty Queen Elizabeth and her heirs and successors. Those MPs who hold no truck with Almighty God are allowed to swear allegiance without reference to the might of any deity. And those who do not like to swear at all may “solemnly, sincerely and truly affirm” their allegiance to the monarch.

Still, there is a limit to the flexibility of even this Parliament. What of MPs who can take or leave the Almighty but have no truck with their monarch? Here Parliament puts its foot down. Republicans can only grumble and comply. In 1997 one Labour MP, Tony Banks, crossed his fingers while uttering the oath. Another, Tony Benn, said before swearing: “As a committed republican, under protest, I take the oath required of me by law...”. Mr Benn points out that nobody in Britain takes an oath to uphold democracy: MPs take an oath to the queen and she takes an oath to govern the country and uphold the rights of bishops.

The quarrel about the oath is not just an abstract affair. It has just sparked a monstrous fight. At present the four MPs of Sinn Fein, the political arm of the IRA, cannot take their seats because they will not take the oath. Until a few years ago, they were allowed to use the facilities of the Palace of Westminster, but the Commons withdrew these privileges in 1997, a dark period in Northern Ireland. Now the government has re-instated some of these privileges as a reward for Sinn Fein's co-operation in the peace process.

The Conservatives are outraged. No oath, no entry, they say, even to the mere precincts of the Commons.

Can this be right? Up to a point. Sinn Feiners are not gentle Bennites who think that monarchy is a bad fit with modern democracy. They are the appendix of a terrorist organisation that has tried by force to expel Britain from Northern Ireland and deliver that Dominion to a forraigne Prince. Right now the IRA is on ceasefire and Sinn Fein sits in Northern Ireland's new assembly and executive. But for many decades this movement has indeed borne arms, raised tumult and offered violence and hurt to the royal person and her subjects. It has murdered three Westminster MPs. And although it claims to have given up violence it has not changed its aim. Sinn Fein MPs cannot take the loyal oath because they are not loyal. They have, indeed, won election on a promise not to be loyal. While the oath exists, they cannot and should not be allowed to take their seats.

So scrap the oath. It is picturesque (which is why Bagehot will regret its passing), but it is a relic. Worse, it is a picturesque relic with baleful consequences. It makes liars out of honourable MPs who want to argue against monarchy, which is a legitimate argument that ought to be aired in the nation's democratic forum. And it disenfranchises the minority of British voters who seek union with Ireland and have chosen MPs committed to this cause. Like all citizens, MPs should obey the laws of the land. But why, apart from this, should Parliament set any political or religious test for its would-be members? “The only test for inclusion and membership of this House,” argues Kevin McNamara, who has sponsored a bill that would remove the oath, “should be the will of the electorate, freely expressed.” Amen.

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The triumph of English

A world empire by other means

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The new world language seems to be good for everyone—except the speakers of minority tongues, and native English-speakers too perhaps

IT IS everywhere. Some 380m people speak it as their first language and perhaps two-thirds as many again as their second. A billion are learning it, about a third of the world's population are in some sense exposed to it and by 2050, it is predicted, half the world will be more or less proficient in it. It is the language of globalisation—of international business, politics and diplomacy. It is the language of computers and the Internet. You'll see it on posters in Côte d'Ivoire, you'll hear it in pop songs in Tokyo, you'll read it in official documents in Phnom Penh. Deutsche Welle broadcasts in it. Bjork, an Icelander, sings in it. French business schools teach in it. It is the medium of expression in cabinet meetings in Bolivia. Truly, the tongue spoken back in the 1300s only by the “low people” of England, as Robert of Gloucester put it at the time, has come a long way. It is now the global language.

How come? Not because English is easy. True, genders are simple, since English relies on “it” as the pronoun for all inanimate nouns, reserving masculine for *bona fide* males and feminine for females (and countries and ships). But the verbs tend to be irregular, the grammar bizarre and the match between spelling and pronunciation a nightmare. English is now so widely spoken in so many places that umpteen versions have evolved, some so peculiar that even “native” speakers may have trouble understanding each other. But if only one version existed, that would present difficulties enough. Even everyday English is a language of subtlety, nuance and complexity. John Simmons, a language consultant for Interbrand, likes to cite the word “set”, an apparently simple word that takes on different meanings in a sporting, cooking, social or mathematical context—and that is before any little words are combined with it. Then, as a verb, it becomes “set aside”, “set up”, “set down”, “set in”, “set on”, “set about”, “set against” and so on, terms that “leave even native speakers bewildered about [its] core meaning.”

English has few barriers to entry. Terms from “downloading” to “phat” are readily received

As a language with many origins—Romance, Germanic, Norse, Celtic and so on—English was bound to be a mess. But its elasticity makes it messier, as well as stronger. When it comes to new words, English puts up few barriers to entry. Every year publishers bring out new dictionaries listing neologisms galore. The past decade, for instance, has produced not just a host of Internettery, computerese and phonebabble (“browsers”, “downloading”, “texting” and so on) but quantities of teenspeak (“fave”, “fit”, “pants”, “phat”, “sad”). All are readily received by English, however much some fogies may resist them. Those who stand guard over the French language, by contrast, agonise for years over whether to allow *CD-Rom* (no, it must be *cédérom*), *frotte-manche*, a Belgian word for a sycophant (sanctioned), or *euroland* (no, the term is *la zone euro*). Oddly, *shampooing* (unknown as a noun in English) seemed to pass the French

Academy *nem con*, perhaps because the British had originally taken “shampoo” from Hindi.

Albion's tongue unsullied

English-speakers have not always been so *Angst*-free about this *laisser-faire* attitude to their language, so ready to present a *façade* of *insouciance* at the *de facto* acceptance of foreign words among their *clichés*, *bons mots* and other *dicta*. In the 18th century three writers—Joseph Addison (who founded the *Spectator*), Daniel Defoe (who wrote “Robinson Crusoe”) and Jonathan Swift (“Gulliver's Travels”)—wanted to see a committee set up to regulate the language. Like a good protectionist, Addison wrote:

> I have often wished that...certain Men might be set apart, as Superintendents of our Language, to hinder any Words of Foreign Coin from passing among us; and in particular to prohibit any French Phrases from becoming current in this Kingdom, when those of our own stamp are altogether as valuable.

Fortunately, the principles of free trade triumphed, as Samuel Johnson, the compiler of the first great English dictionary, rather reluctantly came to admit. “May the lexicographer be derided,” he declared, “who shall imagine that his dictionary can embalm his language...With this hope, however, academies have been instituted to guard the avenues of their languages...but their vigilance and activity have hitherto been vain...to enchain syllables, and to lash the wind, are equally the undertakings of pride.”

Pride, however, is seldom absent when language is under discussion, and no wonder, for the success or failure of a language has little to do with its inherent qualities “and everything to do with the power of the people who speak it.” And that, as Professor Jean Aitchison of Oxford University points out, is particularly true of English.

It was not always so. In the eastern half of the Roman empire, Greek remained the language of commerce, and of Christians such as St Paul and the Jews of the diaspora, long after Greek political supremacy had come to an end. Latin continued to be the language of the church, and therefore of any West European of learning, long after Rome had declined and fallen. But Greek and Latin (despite being twisted in the Middle Ages to describe many non-Roman concepts and things) were fixed languages with rigid rules that failed to adapt naturally. As Edmund Waller wrote in the 17th century,

> Poets that lasting marble seek,Must carve in Latin or in Greek.We write in sand, our language grows,And like the tide, our work o'erflows.

English, in other words, moved with the times, and by the 19th century the times were such that it had spread across an empire on which the sun never set (that word again). It thus began its rise as a global language.

That could be seen not just by the use of English in Britain's colonies, but also by its usefulness much farther afield. When, for instance, Germany and Japan were negotiating their alliance against America and Britain in 1940, their two foreign ministers, Joachim von Ribbentrop and Yosuke Matsuoka, held their discussions in English. But however accommodating English might be, and however much of the map was once painted red, the real reason for the latterday triumph of English is the triumph of the English-speaking United States as a world power. Therein lies a huge source of friction.

The real reason for the triumph of English is the triumph of the United States. Therein lies a huge source of friction

Damn Yanks, defensive Frogs

The merit of English as a global language is that it enables people of different countries to converse and do business with each other. But languages are not only a medium of communication, which enable nation to speak unto nation. They are also repositories of culture and identity. And in many countries the all-engulfing advance of English threatens to damage or destroy much local culture. This is sometimes lamented even in England itself, for though the language that now sweeps the world is called English, the culture carried with it is American.

On the whole the Brits do not complain. Some may regret the passing of the “bullet-proof waistcoat” (in favour of the “bullet-proof vest”), the arrival of

Some may regret

“hopefully” at the start of every sentence, the wholesale disappearance of the perfect tense, and the mutation of the meaning of “presently” from “soon” to “now”. But few mind or even notice that their old “railway station” has become a “train station”, the “car park” is turning into a “parking lot” and people now live “on”, not “in”, a street.

the passing of the “bullet-proof waistcoat”. But they may welcome the “parking lot” instead of the “car park”

Others, however, are not so relaxed. Perhaps it is hardest for the French. Ever since the revolution in 1789, they have aspired to see their language achieve a sort of universal status, and by the end of the 19th century, with France established as a colonial power second only to Britain and its language accepted as the *lingua franca* of diplomacy, they seemed to be on their way to reaching their goal. As the 20th century drew on, however, and English continued to encroach, French was driven on to the defensive.

One response was to rally French-speakers outside France. Habib Bourguiba, the first president of independent Tunisia, obligingly said in 1966 that “the French-language community” was not “colonialism in a new guise” and that to join its ranks was simply to use the colonial past for the benefit of the new, formerly French states. His counterpart in Senegal, Léopold Senghor, who wrote elegantly in the language of Molière, Racine and Baudelaire, was happy to join La Francophonie, an outfit modelled on the (ex-British) Commonwealth and designed to promote French language and culture. But though such improbable countries as Bulgaria and Moldova have since been drawn in—France spends about $1 billion a year on various aid and other programmes designed to promote its civilisation abroad—French now ranks only ninth among the world's languages.

The decline is everywhere to be seen. Before Britain joined the European common market (now the European Union) in 1973, French was the club's sole official language. Now that its members also include Denmark, Finland and Sweden, whose people often speak better English than the British, English is the EU's dominant tongue. Indeed, over 85% of all international organisations use English as one of their official languages.

Even in France itself, the march of English is remorseless

In France itself, the march of English is remorseless. Alcatel, the formerly state-owned telecoms giant, uses English as its internal language. Scientists know that they must either “publish in English or perish in French”. And though one minister of “culture and the French language”, Jacques Toubon, did his utmost to banish foreign expressions from French in the mid-1990s, a subsequent minister of education, Claude Allègre, declared in 1998 that “English should no longer be considered a foreign language... In future it will be as basic [in France] as reading, writing and arithmetic.”

That does not mean that France has abandoned its efforts to stop the corruption of its beautiful tongue. Rearguard actions are fought by Air France pilots in protest at air-traffic instructions given in English. Laws try to hold back the tide of insidious Albion on the airwaves. And the members of the French Academy, the guardians of *le bon usage*, still meet in their silver-and-gold-embroidered uniforms to lay down the linguistic law.

Those who feel pity for the French, however, should feel much sorrier for the Quebeckers, a minority of about 6m among the 300m English-speakers of North America. It is easy to mock their efforts to defend their beleaguered version of French: all those absurd language police, fighting *franglais*, ensuring that all contracts are written in French and patrolling shops and offices to make sure that any English signs are of regulation size. But it is also easy to understand their concern. After all, the publishing onslaught from the United States is enough to make English-speaking Canadians try to put up barriers to protect their magazines in apparent defiance of the World Trade Organisation: Canada's cultural industries are at stake, they say. No wonder the French-speakers of Quebec feel even more threatened by the ubiquity of English.

Germans, Poles and Chinese unite

French-speakers are far from alone. A law went into effect in Poland last year obliging all companies selling or advertising foreign products to use Polish in their advertisements, labelling and instructions. Latvia has tried to keep Russian (and, to be more precise, Russians) at bay by insisting on the use of the Latvian language in business. Even Germany, now the pre-eminent economic and political power in Europe, feels it necessary to resist the spread of *Denglisch*. Three years ago the Institute for the German Language wrote to Deutsche Telekom to protest at its adoption of “grotesque” terms like CityCall,

HolidayPlusTarif and GermanCall. A year earlier, an article in the*Frankfurter Allgemeine Zeitung* in which a designer had been quoted using expressions like “giving story”, “co-ordinated concepts” and “effortless magic” so infuriated Professor Wolfgang Kramer that he founded the Society for the Protection of the German Language, which now awards a prize for the *Sprachpanscher* (language debaser) of the year.

For some countries, the problem with English is not that it is spoken, but that it is not spoken well enough. The widespread use of Singlish, a local version of Shakepeare's tongue, is a perpetual worry to the authorities in Singapore, who fear lest their people lose their command of the “proper” kind and with it a big commercial advantage over their rivals.

In Hong Kong, by contrast, the new, Chinese masters are promoting Cantonese, to the concern of local business. And in India some people see English as an oppressive legacy of colonialism that should be exterminated. As long ago as 1908 Mohandas Gandhi was arguing that “to give millions a knowledge of English is to enslave them.” Ninety years later the struggle was still being fought, with India's defence minister of the day, Mulayam Singh Yadav, vowing that he would not rest “until English is driven out of the country”. Others, however, believe that it binds a nation of 800 tongues and dialects together, and connects it to the outside world to boot.

Some countries try, like France, to fix their language by fiat. A set of reforms were produced in Germany a few years ago by a group of philologists and officials with the aim of simplifying some spellings—*Spagetti* instead of *Spaghetti*, for example, *Saxifon* instead of *Saxophon*—reducing the number of rules governing the use of commas (from 52 to nine), and so on. Dutifully, the country's state culture ministers endorsed them, and they started to go into effect in schoolrooms and newspaper offices across the country. But old habits die hard, unless they are making way for English: in Schleswig-Holstein the voters revolted, and in due course even such newspapers as the *Frankfurter Allgemeine Zeitung* abandoned the new practice.

Spain strives for conformity too, through a Spanish Royal Academy similar to the French Academy. The job of the 46 Spanish academicians is to “cleanse, fix and give splendour” to a language that is very much alive, although nine out of ten of its speakers live outside Spain. The academy professes a readiness to absorb new words and expressions, but its director admits that “changes have become very rare now.” No wonder Spanish-speaking countries in Latin America—as well as the Philippines and the United States—have set up their own academies.

Keeping tiny tongues alive

Rules alone may be unable to withstand the tide of English, but that does not mean it is impossible to keep endangered languages in being. Mohawk, for instance, spoken by some indigenous people in Quebec, was in retreat until the 1970s, when efforts were made first to codify it and then to teach it to children at school. Welsh and Maori have both made a comeback with the help of television and government interference, and Navajo, Hawaiian and several languages spoken in Botswana have been reinvigorated artificially.

Iceland has been extraordinarily successful at keeping the language of the sagas alive, even though it is the tongue of barely 275,000 people. Moreover, it has done so more by invention than by absorption. Whereas the Germans never took to the term *Fernsprechapparat* when *Telefon* was already available, and the French have long preferred *le shopping* and *le weekend* to their native equivalents, the Icelanders have readily adopted *alnaemi* for “AIDS”, *skjar* for “video monitor” and *toelva* for “computer”. Why? Partly because the new words are in fact mostly old ones: *alnaemi* means “vulnerable”, *skjar* is the translucent membrane of amniotic sac that used to be stretched to “glaze” windows, and *toelva* is formed from the words for “digit” and “prophetess”. Familiarity means these words are readily intelligible. But it also helps that Icelanders are intensely proud of both their language and their literature, and the urge to keep them going is strong.

Of the world's 6,000 or 7,000 languages, a couple go out of business each week. Most are in the jungles of Papua New Guinea or in Indonesia

Perhaps the most effective way of keeping a language alive, however, is to give it a political purpose. The association of Irish with Irish nationalism has helped bring this language back from its increasing desuetude in the 19th century, just as Israeli nation-building has converted Hebrew from being a merely written language into a national tongue.

For some nations, such as the Indians, the pain felt at the encroachments of English may be tempered by the pleasure of seeing their own words enriching the invading tongue: Sir Henry Yule's 1886 dictionary, “Hobson-Jobson”, lists thousands of Anglo-Indian words and phrases. But for many peoples the triumph of English is the defeat, if not outright destruction, of their own language. Of the world's 6,000 or 7,000 languages, a couple go out of business each week. Some recent victims from the rich world have included Catawba (Massachusetts), Eyak (Alaska) and Livonian (Latvia). But most are in the jungles of Papua New Guinea, which still has more languages than any other country, or Indonesia, or Nigeria (India, Mexico, Cameroon, Australia and Brazil follow).

Pundits disagree about the rate at which languages are disappearing: some say that by the end of the century half will have gone, some say 90%. But whenever a language dies, a bit of the world's culture, history and diversity dies with it. This is slowly coming to be appreciated. The EU declared 2001 to be “European year of languages”, and it is striking that even France—whose hostility to linguistic competition is betrayed by the constitution's bald statement that “the language of the Republic is French”—now smiles more benignly on its seven regional tongues (Alsatian, Basque, Breton, Catalan, Corsican, Flemish and Provençal).

Yet the extinction of most languages is probably unstoppable. Television and radio, both blamed for homogenisation, may, paradoxically, prolong the life of some by narrow-casting in minority tongues. And though many languages may die, more people may also be able to speak several languages: multilingualism, a commonplace among the least educated peoples of Africa, is now the norm among Dutch, Scandinavians and, increasingly, almost everyone else. Native English-speakers, however, are becoming less competent at other languages: only nine students graduated in Arabic from universities in the United States last year, and the British are the most monoglot of all the peoples of the EU. Thus the triumph of English not only destroys the tongues of others; it also isolates native English-speakers from the literature, history and ideas of other peoples. It is, in short, a thoroughly dubious triumph. But then who's for Esperanto? Not the staff of *The Economist*, that's for sure.

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Singles and the city

The Bridget Jones economy

Dec 20th 2001 | LONDON AND NEW YORK
From The Economist print edition

Tony Stone

How young singles shape city culture, lifestyles and economies

ONE of the funniest films of 2001, “Bridget Jones's Diary”, depicts the life of a young woman who fails over and over again to keep the new year's resolutions that open the book on which the film is based. “I will not”, Bridget promises herself,

> Drink more than 14 alcohol units a week.Singles and the city.Smoke.Spend more than earn.Fall for any of the following: alcoholics, workaholics, commitment phobics, people with girlfriends or wives, misogynists, megalomaniacs, chauvinists, freeloaders, perverts.Sulk about having no boyfriend.

Bridget lives alone in London, worries constantly about being 30-something but still single, resents “Smug Marrieds”, lives mainly on chocolate, cigarettes and wine, and occasionally tries to dump the resulting cellulite with a trip to the gym. When her affair with her dreadful boss ends in the inevitable disaster, she is propped up by her gang of friends: two single women and a gay man.

Bridget may be a caricature, but only just. Her creator, Helen Fielding, has drawn someone much more human and recognisable than the elegant and wealthy young New York singles in the TV shows “Friends” and “Sex and the City”. Yet all three portray the people who now dominate and shape the rich world's city life, not just in New York and London, but increasingly in Tokyo, Stockholm, Paris and Santiago: well-educated, single professionals in their 20s and 30s.

Moralists fret about them; marketing folk court them; urban developers want to lure them. They are the main consumers and producers of the creative economy that revolves around advertising, publishing, entertainment and media. More than any other social group, they have time, money and a passion for spending on whatever is fashionable, frivolous and fun.

Bridget and her friends have begun to show up in the census figures. Spotting them is tricky: many of those who live alone are not Bridgets, and many Bridgets share a pad with someone else. However, the evidence adds up. In America's 2000 Census, one-person households outnumbered for the first time married families with children. Many of these households consist of divorced, widowed or elderly people. But the biggest rise in the 1990s was in the proportion of young people who are living alone.

In the past three decades, says Jason Fields of the US Census Bureau, the proportion of 20-24-year-old American women who have not married doubled from 36% to 73%; and that of 30-34-year-olds more than tripled, from 6% to 22%. Some of these singles—but again, not all—are single mothers, another

fast-growing group. And many others (and their male equivalents) are Friends, not Bridgets: they share with other youngsters. The 1990s saw a rise in the proportion of households in which people live with someone to whom they are not related, either by blood or marriage.

What explains the trend? The key seems to be the higher education of women. In most rich countries, more women than men now go to university; in particular, women make up more than half the students taking professional qualifications in subjects such as law and medicine. As new job opportunities unfold, they often earn as much as similarly qualified men. They find work is fun and it pays well, so they put off marriage. Husbands and babies can wait. “Today, people know that they are going to be married till they are 80. So 40 is the new 30,” says Marcus Matthews of Kaagan Research, a market-research firm.

Up to now, that has been a strategy that makes sense. More people marry today—at least once—than ever before. Thus fewer than 7% of Americans in their early 50s have never married. Compare that, says Nicholas Eberstadt, a demographer at the American Enterprise Institute, with America in the late 19th century. Then, the marriage market was far less efficient and 20-25% of women never married. The result, he says, has been a sort of democratisation of marriage and motherhood, where almost all women marry and most have at least one child.

But the longer women delay, the bigger the chance of failing to do either. Bridget sums up the problem. “The trouble with trying to go out with people when you get older is that everything is so loaded,” she grumbles.

> When you are partnerless in your 30s, the mild bore of not being in a relationship—no sex, not having anyone to hang out with on Sundays, going home from parties on your own all the time—gets infused with the paranoid notion that the reason you are not in a relationship is your age. The whole thing builds up out of all proportion, so finding a relationship seems a dazzling, almost insurmountable goal, and when you do start going out with someone it cannot possibly live up to expectations.

The odds are further stacked by the fact that the cities which attract Bridgets are also inevitably places where a disproportionate number of the men are gay. In “Boiler Room”, a film about life in New York, a group of beefy stockbrokers teases the gay men at the next table. “You guys ought to find your own island,” jeers one. “You're on it,” retorts one of his targets. No wonder young New York women, already a majority, fret so much about the difficulties of finding a partner.

Meeting and mating

The boyfriend-hunt is a big part of Bridget's life. And so it is with real-life Bridgets, many of whom find the big cities to which they flock lonely places. In competitive New York, the problem is at its worst: the Machiavellian brutality of office politics makes it hard to form friendships with the folk at work.

Besides, many young New Yorkers live alone in tiny apartments. Their counterparts in London typically share, finding a flat through the pages of *Loot*, a newspaper in which the ads lay down in great detail the desirable qualities of “third woman to share non-smoking mixed house in Kentish Town”. In London, the third woman could expect to meet the friends of her flat-mates in front of the television in the living room, or scavenging in the fridge in the communal kitchen. In New York, the only way to meet people is to go out.

So location becomes everything. As with other efficient markets, geographical clustering thrives: “You want to be where the potential partners are, not stuck out in the suburbs,” argues Robert Beauregard, professor at the New School for Social Research. A few corners of Brooklyn, such as Park Slope, or Hoboken, New Jersey, may pass muster. But mainly that means Manhattan, and especially quarters such as the Flatiron district or “Alphabet City”: Avenues A, B, C and D on the Lower East Side, where Bridgets rub shoulders with Dominican immigrants.

The aim is to find somewhere affordable and fun. When Ruth Bienstock of the Corcoran Group, a New York estate agent, finds homes for young professionals, she tells them: “This exorbitant rent is because you are joining a club. God knows it's not for the space. The privilege of being part of this energy is what you're paying for.” If you are a single woman, you want access to eligible men included in the price. In July 2001, the *New York Observer* published a helpful article on “Where the Boys Are”, with colour-coding to show which

After work, America's young singles head for the rowing machines, the

neighbourhoods had more men than women.

workout and the juice bar

In general, the boys tend to be in neighbouring bars and restaurants. New York restaurants typically have a large and welcoming space in which groups of women can feel comfortable drinking together. The tone at Lot 61, a fashionable nightclub run by Bruce Leggett-Flynn on West 21st Street in New York, is set by expensively groomed young women who arrive for the evening in predatory groups. In Prada denim jackets and Jimmy Choo shoes, they expect to buy their own drinks with their own money. “The women are in complete control,” Mr Leggett-Flynn observes.

For those who dislike staying up past midnight on “school days”, bars are not the only bet. Fashionable food shops have become hunting grounds in the mating game. In New York, grocery shops such as Fairway and Zabar are packed after work with singles. Not long ago, one couple celebrated their meeting in the cheese section of Fairway by getting married there. An enterprising shopping mall, the Trafford Centre in England's Manchester, has taken this to its logical conclusion and runs a singles night. “I'm single, let's mingle,” urge the stickers that shoppers receive.

If the cheese counter fails, there is always the gym. After work, America's young singles head for the rowing machines, the workout and the juice bar. All those pounding, straining figures are not in pursuit just of the body beautiful. Gyms and health clubs are sexy places.

Finding Bridget a mate has produced all sorts of entrepreneurial solutions. Lots of them are on the Internet, allowing the hunt to continue through working hours. Adam Klein, a consultant with Booz-Allen & Hamilton who was until recently running a search site called Ask Jeeves, says that over two-thirds of those who came to search were women, mainly aged between 18 and 35. That contrasts with sites such as Google, used mainly by men. Half an hour before people leave work for home, the site regularly sees a surge in seekers. Lots of women are hunting for dating sites, he says, “one of the fastest growing sections of the Internet”.

Among them are Match.com, which claims to be “the web's largest community of discriminating eligible singles”. Another site, Its Just Lunch, is a “specialised dating service for busy professionals” offering browsers a low-commitment chance to meet. Several enterprising companies run “speed dating” services: a group of would-be partners chat to each other for precisely six minutes in a bar: then a bell rings, and all move on to the next person.

All this partner-hunting is stressful—and stress can be costly. Psychoanalysis, reports Jennifer Senior, a successful journalist on *New York* magazine, is a big expense for many of her colleagues and friends. “Psychic maintenance” easily costs as much as rent. She pays $1,700 to share a flat with another woman in the East Village; therapy, which she recently stopped, cost her $1,200 “and I was getting the bulk rate”. Almost everyone in her office, which is full of young singles, and most of the men she has dated have tried therapy at some stage.

There is a cheaper option. When it all grew too much for Bridget, she picked up the telephone and rang her friends, Jude, Shazzer and the gay Tom. “I know we're all psychotic, single and completely dysfunctional,” says Tom at one point, “but it's a bit like a family, isn't it?”

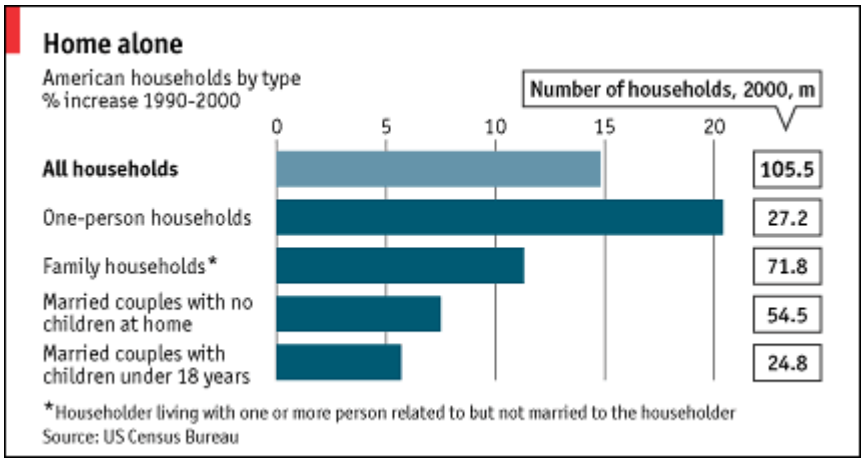
Others have the same thought. In an article in the magazine of the Sunday *New York Times* in October, Ethan Watters, a writer living in San Francisco, described life “In My Tribe”. As he moved into his 30s, he found that he had become part of a group of friends. “After a few years, that group's membership and routines began to solidify. We met weekly for dinner. We travelled together, moved one another's furniture, painted one another's apartments, cheered one another on at sporting events. One day, I discovered that I belonged to an urban tribe.”

Many singles are part of these tribes. Their intertwined lives have become more flexible thanks to the mobile telephone, which allows plans to be set and changed in a matter of moments. The tribe provides the support and security that the fragmented families of these young singles frequently fail to offer.

Markets for one

Because young singles have so much disposable money and because they set so many trends, they are a market that many companies long to sell to. But their independence and unpredictability make them hard to define and capture. “Targeting Bridget Jones is like trying to nail Jello to the wall,” says David Copper, a marketing specialist at Bain, despairingly.

Bridget's taste for booze makes her prime quarry for companies such as Allied Domecq, where Matt Wiant, head of American marketing, argues that the drinking tastes of young women are the key to creating a market for various spirits that were once drunk mainly by middle-aged men after dinner and with a cigar. Courvoisier brandy is a case in point: his company is trying to reinvent it by persuading young women to order it mixed with Cointreau and cranberry juice. Young men, he argues, look to their girlfriends for suggestions on what is and isn't fashionable to quaff.



Young single women drink plenty: figures from the Life Style study by DDB, a market-research firm in Chicago, suggest that 45% of single 24-35-year-old women who earn at least $20,000 a year confess to having too much to drink sometimes, compared with 24% of women in general. “Blurry goofun tonight,” slurs Bridget after a binge. And they eat sporadically, when they are not dieting: Bridget is no whiz at maths, but she knows the calorific value of an olive to within a decimal point. Because cooking for one is a bore, and eating alone is miserable, singles are big buyers of pre-prepared food. Their ovens are for extra storage; the main cooking utensil is the microwave. Bridget Jones and her friends raid Marks & Spencer, a big British retailer, for “two bottles of wine (1 fizzy, 1 white)” and

> 1 tub hummus & pkt of mini-pittas12 smoked salmon and cream cheese pinwheels1 raspberry pavlova1 tiramisu (party size)2 Swiss Mountain Bars

Marks & Spencer took rather longer than Ms Fielding to notice the part that it plays in stuffing calories into British singles. But the store recently realised that its portions-for-one of pre-prepared food were designed for the bird-like and conservative appetites of the elderly, and not for young women (let alone young men). It now does a good trade in large one-person helpings of ethnic goodies such as noodles and lamb tagine.

But the main thing that distinguishes Bridget from her married sisters is the amount of time and money she spends on simply having fun. Most of that fun happens outside the apartment. Scott McDonald, head of marketing research at Conde Nast, publishers of *Vogue* and other Bridget mind-fodder, is impressed by how much single professional women in their 30s spend on holidays, art classes, music lessons, health clubs, concerts, yoga classes, movies, eating out—and, of course, shopping and shopping. DDB's study found them especially likely to jog, play tennis and take exercise classes.

Even more than marketing men, though, cities in need of economic revival have their eyes on young singles. Many of them have grasped that these are the shock troops of creativity and culture; that they drive gentrification because they are willing to live in the lofts of inner cities and that they bring with them lots of restaurants and night life. They lead what Allen Scott, director of the centre for globalisation and policy research at the University of California, Los Angeles, calls “the aesthetisation” of the city, and the evolution of “the city as spectacle”.

Here, it is not just Bridget who counts, but also her gay friend Tom. Richard Florida of Carnegie Mellon University argues that the most creative cities in the United States are also those with the highest proportion of gay households. The reason is partly that gay households have the hefty spending power of two

Bridget is no whiz at maths, but she knows the

earners without the expense of children. But, in addition, their presence goes with the sort of open, diverse city culture in which creative industries thrive.

calorific value of an olive to within a decimal point

So the key components of urban growth, he argues, are “technology, talent and tolerance”. To measure their presence, he has constructed a “gay index” which turns out to be highly correlated with a “coolness index”, measuring the hip and the trendy. Surveying 50 cities, he found that the leading indicator of high-technology success is a large gay population, followed by a high concentration of artists, writers, musicians and actors.

Happily ever after?

What happens to Bridget and her friends in the wake of September 11th, an event that may subtly but irreparably change the life of the young? Thomas Miller of Roper ASW, a market-research organisation, argues that the polls which his organisation has conducted show that the group whose confidence has been most undermined by those horrific events is people in their 20s. “It has had a profound effect on young people who grew up in a period of affluence,” he says. Many felt that one of life's main purposes was to have fun.

Perhaps that will now change. Maybe the need for companionship and the comfort of a durable relationship will become more important. In future, Bridget Jones may be more willing to settle sooner for marriage and less eager to find self-fulfilment at work. Young women reared to believe that a career is their birthright have done better in the job market than the marriage market. At the end of her day, Bridget is hugely relieved to find that Mark Darcy really loves her. Could that really be what matters most to single women in their 30s?

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Espresso coffee

In search of a perfect cup

Dec 20th 2001 | PARIS, PAUDEX, TREVISO AND TRIESTE
From The Economist print edition

Espresso coffee requires as much technology and taste as fine wine. Where to find the finest?

Get article background

LOOK into a small, elegant cup of espresso coffee and examine carefully the top layer of foam, known to aficionados as *crema*. Made of tiny gas bubbles trapped in a liquid film, the foam seals the coffee's intense aromas and flavours and locks in heat. A good *crema* depends on the quality of the coffee and on the skill with which it is prepared. In a perfect espresso it is velvety, with a warm and characteristic hazel-brown or “tiger-skin” colour. It is also persistent, lasting as long as the drink, and with sufficient body to support the weight of granulated sugar for a few seconds.

Perfect espresso is the ultimate coffee. It ranks with fine wine for the complexity of its chemistry. Unlike wine, however, it does not improve with age. “Espresso” means prepared on the spur of the moment, and it has become the trademark of rich, intense coffee that must also be consumed at once. Its taste is so dense, though, that it can remain in the mouth for up to half an hour after drinking.

For decades, making espresso was either an art or a lottery. The artists were trained *baristas*, skilled operators who worked big espresso machines in the coffee bars of Europe. For amateurs trying to make their own espresso it was more a matter of luck, the occasional success a reminder of the reason for the quest. In the early 1990s, only one household in every five then owning an espresso machine used it regularly, because the results were so unreliable.

Today, however, perfect espresso can be found almost anywhere. It can even be made at home thanks to clever new machines that produce consistently good coffee with a minimum of fuss from neatly-packaged individual portions. Among the most influential pioneers have been illycaffe, an Italian family firm based in Trieste, and Nespresso, a division of Nestlé, a Swiss food giant. Nespresso has combined simple-to-use espresso machines with clever marketing to transform consumption at home. Greater reliability has made espresso one of the fastest-growing segments of the otherwise troubled world coffee market.

The bean before steam

By the middle of the 19th century, coffee was well established in Europe as an important trade commodity. Despite growth in the market, however, there had for centuries been little change in the way

that coffee was made—either by the so-called Turkish method or by infusion. In both preparations, roasted coffee beans are first ground and then placed in water. The Turkish method requires that the water be boiled three times before the grounds are allowed to settle and the drink is poured. Infusion is simpler—ground coffee is steeped for a few minutes in boiled water and the resulting liquid is then strained before serving.

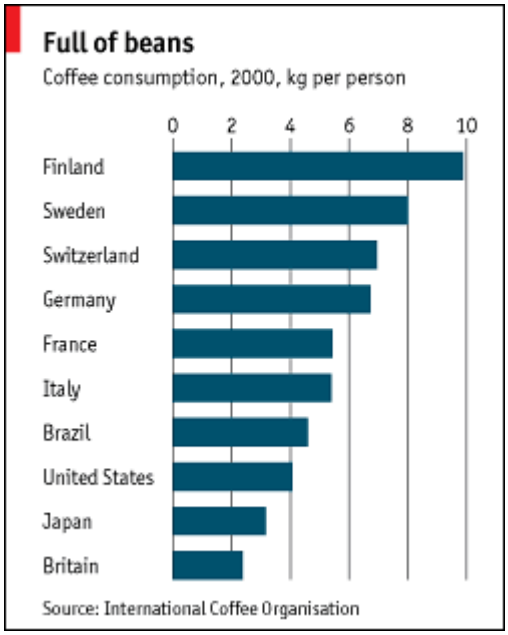
These methods produced acceptable coffee, but each had serious drawbacks. Multiple boilings replaced the Turkish coffee's delicate flavours with a strong, astringent drink that was routinely sweetened and often further flavoured with cardamom. Steeping, on the other hand, was too feeble to extract more than around 20% of the oils and volatile substances that give coffee its distinctive aroma and flavour.

Late in the 19th century, a new method of preparation, known as percolation, offered an improvement and laid the foundations for the espresso revolution that began around 1900. Percolation involved passing boiling or near-boiling water through ground coffee, using either gravity or the light pressure created by steam.

More important as a technological breakthrough was the mocha method. In this, water is boiled in a lower chamber and forced by steam pressure through a metal filter containing the ground coffee into an upper chamber from which it can be served. The contact between the coffee and the water is relatively brief, lasting around a minute. This produces coffee that is strong and sometimes sufficiently bitter that it needs sweetening.

Espresso coffee also relies on pressure, but whereas a mocha pot produces only one atmosphere of pressure, espresso machines require at least nine and ideally ten. Drunk immediately, espresso transcends other coffees thanks to the greater extraction of essential coffee aromas and flavours. The first recognisable espresso machine was exhibited at the Paris fair of 1855. However, it is generally accepted that the inventor of the modern espresso machine was Luigi Bezzerra, an Italian entrepreneur who began commercial manufacture of espresso machines in 1901.

His were cumbersome beasts that relied on steam to create the high pressure required, and they demanded skilled operators to control a series of taps. But they were a hit in bars and brasseries, and they changed Italian coffee-drinking habits for good. Espresso takes a mere 2% of the world market for roasted coffee, but it accounts for half the Italian market.



Others soon followed Bezzerra into production, and some of the newcomers made important innovations. In 1933, Francesco Illy founded illycaffe in Trieste and two years later produced the “Illetta”, the first machine to measure the quantity of water automatically, and the first to use compressed air rather than steam to create pressure. In 1945, a new machine made by Gaggia, another Italian firm, greatly simplified the overall design, introducing a spring-loaded lever to drive a piston and compress the water.

These elegant machines were much easier to use than their predecessors and some are still in use today, especially in southern Italy. A few connoisseurs insist that they are superior to rivals, and it is true that in the right hands they can produce a perfectly balanced coffee.

A further burst of innovation came in 1961 when Ernesto Valente, yet another pioneering Italian, set out to re-think the design of the espresso machine from first principles. He wanted to replace the spring of the lever machine with an electric-powered rotating pump, but no pump could handle hot water. So Valente decided to compress cold water, which would then pass across a heat exchanger before reaching the ground coffee at the optimum temperature of 90°C. His Faema E61 machine was revolutionary, and the main elements of its design define most espresso machines today.

The hard grind

It takes roughly 50 coffee beans to make a single cup of espresso. After roasting and grinding, the coffee

weighs around 6.5 grams. A cup of espresso will contain a rich variety of solids, though in minute quantities, whereas a cup of filter coffee contains almost none. But then espresso coffee is full of chemical and olfactory surprises.

One is that it contains less caffeine than almost any other form of prepared coffee. True espresso must be made entirely from arabica beans, which have half the caffeine of the alternative robusta variety. In the making of a perfect espresso, too, the hot water and the coffee combine only briefly—ideally, for 30 seconds. That limits the amount of caffeine that can pass into the water. By contrast, steeped or percolated coffee made with robusta beans is very strong in caffeine.

A single coffee bean may contain over 1,200 chemical substances

A second surprise is the sheer variety of chemical substances inside a single roasted coffee bean. Scientists reckon there are more than 1,200 of them, of which perhaps 700-800 are volatile compounds responsible for aroma. The espresso process releases more volatiles than other methods of preparation.

The aroma is a vital part of perfect espresso. “Roughly 70% of what we perceive is aroma,” says Furio Suggi Liverani, director of research at illycaffe, “while the remaining 30% is received by taste receptors on the tongue.” Perfect coffee requires excellent preparation, but it also requires top-quality beans. If just one of the 50 is a dud, then that cup will be perceptibly less than perfect. The roasting must be even, and the grinding process must be finely calibrated so that the resulting coffee allows smooth passage of the hot water that extracts the flavour.

It has taken manufacturers decades to sort out each element in this exacting process. The biggest challenge remains avoiding dud beans. It is quite normal for a fair quality batch of green coffee (that is, coffee before roasting) to be 1-2% defective. But if two beans in 100 are duds, the chances of a bad espresso are unacceptably high. Few plantations, however, can afford the sophisticated equipment needed to create defect-free supplies. Instead, coffee companies such as illycaffe and Hausbrandt, a rival based in Treviso near Venice, have developed electronic detection systems. These use light waves to scan individual green beans, which are rejected by a puff of air if they show up as defective. Illycaffe's scanners can assess 400 beans every second.

The final hurdle overcome by the manufacturers was the packaging and storage of espresso. Like all coffee, espresso quickly deteriorates in air. Leading companies began to experiment with making air-tight individual doses. A system developed by illycaffe uses paper pods to hold a single dose of coffee. The pods are then packed under pressure using carbon dioxide to seal out damaging oxygen. So technically demanding is the sealing process that the company had to create its own welding expertise—no supplier was up to the task.

By contrast, Nespresso's doses are neat aluminium capsules, also kept under pressure using carbon dioxide. When inserted into the machine, the punctured capsule acts as a membrane, allowing water to flow evenly through. More ingenious still, the capsule itself has been designed to regulate the pressure pushing the water.

Quality pays

In the past two or three years, the market for espresso coffee has been growing strongly: by more than 10% a year, Nespresso reckons. But “household penetration is low,” says Daniel Lalonde, its commercial director, “so there is enormous future potential.” For instance, 70% of French people drink espresso every day, yet only 10% of French homes boast an espresso machine. Penetration in big markets such as America and Britain is far less, at around 1%.

The context for the growth of espresso is a big shift in the coffee market away from cheap coffee towards specialty products. Amid tales of woe from growers in developing countries, overall coffee prices have declined to record lows during 2001. Observers say a glut of cheap robusta coffee, much of it from Vietnam, which has quickly emerged as a big producer, has been largely to blame.

The quality end of the market, however, has continued to thrive. Big buyers woo individual coffee growers, paying above-market prices to encourage quality and reliability of supply. They can afford this because margins on drinks like espresso are high. A single capsule of Nespresso contains some six grams of coffee and retails for roughly 28 cents, equivalent to around $46 per kilo. A kilo of fair-quality green coffee costs less than $1.

So where to go for guaranteed espresso perfection? Having sampled coffee all over Europe, this correspondent finally found perfection where it might be expected to reside: in the Italian home of espresso. In the heart of old Trieste is the Caffe illy, a coffee bar developed as a laboratory. The atmosphere is cosmopolitan, and the espresso is as near perfect as you can hope to find.

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About sponsorship

Governments in exile

Home thoughts from abroad

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From The Economist print edition

What do politicians do when their country vanishes, or expels them? Carry on as usual, of course

IF YOU feel your country is run by usurpers, what could be more tempting than simply to declare them illegitimate? All the more so if you yourself used to be in charge there, or would like to be. That is the thinking, more or less, that sustains one of the weirdest corners of international politics—the world's two dozen or so governments in exile.

1990: Poland's insignia in exile go back to Lech Walesa

They are as varied as the countries they purport to rule. By far the most serious is the Indian-based Tibetan government in exile, headed by the Dalai Lama. The best proof that it matters is that China, the occupying power in Tibet since 1949, detests it. At the other end of the spectrum is the politically incorrect but amusing Rhodesian government in exile, which is in effect an Internet-based pressure group devoted to lampooning misrule in post-independence Zimbabwe. A pseudonymous representative, Shangani, says by e-mail: “We accept any and all donations to our Swiss bank accounts. Highest bid wins a [government] post and losing donations are non-refundable. On slow days a crate of Castle [beer] will do the trick.”

A few are too shrill to be taken seriously. The so-called American government in exile turns out to be neither a government, nor in exile, only an outdated website protesting about President George Bush's election victory last year. But most reflect some sort of reality, ranging from an all-but-forgotten quirk of history to a grievous contemporary wrong.

There are three big categories. One reflects Europe's tangled history in the past century, as seen in all the governments in exile from the fringes of the Soviet empire. Another lot seek independence for Epirus, once a Greek-speaking principality but now part of southern Albania. A fiery German from Danzig, the independent city-state seized by Hitler in 1939 and later given to Poland, runs a *soi-disant* government in exile in distant Australia.

The second category reflects the confusion and arbitrariness surrounding the end of European colonial empires. A France-based group seeks independence for Cabinda, a Portuguese colony invaded by neighbouring Angola at the time of independence; the Polisario, from its sandy refugee camps in Algeria, maintains its claim to authority over the Western Sahara. In 1986, India's Sikh diaspora proclaimed a

government in exile for their self-described country of Khalistan.

A third category stems simply from oppressive rule, whether imposed by occupiers or home-grown. Burmese opposition politicians have a government in exile based in Washington, DC. A German-based outfit purportedly governs a not-yet-existing state for Egypt's persecuted Coptic Christians.

Nice power if you can get it

Any government, whether in exile or not, matters mainly when it is recognised by real governments in real countries. The last time that exiled governments really mattered in world politics was during the second world war, when the rightful rulers of Nazi-occupied countries such as Czechoslovakia, France, the Netherlands and so forth squatted in London until they could be restored to power.

The other main test is clout. If a government in exile has guerrillas fighting for it, or controls at least a bit of territory back home, or carries a lot of weight in the affairs of a numerous and vocal diaspora, it matters much more than an outfit that meets only to issue press releases and appoint new members.

Applied harshly, these tests leave few modern governments in exile with much to write home about. None are currently recognised by real countries; only the Tibetans and the Polisario have real clout. But it would be a mistake to dismiss the rest as eccentrically-titled pressure groups. Events can quickly move a government in exile to a central place in a country's politics, or at least to an honoured place in its rewritten history.

The best recent example is in East Timor, where leaders of the government in exile are now the country's top politicians. The country was occupied by Indonesia in 1975. The former top guerrilla commander, Xanana Gusmao, who is set to be head of state when the United Nations administration winds up next year, was elected president of the government in exile while in prison in Indonesia. A former justice minister of the Estonian government in exile is now a senior civil servant. In Lithuania, Stasys Lozoraitis, a former diplomat, ran for president in 1993, and a rival from another exile outfit is now a senior member of parliament.

When the communists took power in Eastern Europe, many of the pre-war leaders fled abroad. Some, like the representatives of the Baltic states, maintained a dwindling clutch of musty embassies around the world. For decades, communist propaganda denounced these outfits as irrelevant husks. But as the Soviet empire collapsed, opposition figures and dissidents visited them eagerly.

When the same people took power, they made a point of treating the exile governments, not the outgoing communist politicians, as their real predecessors. On December 22, 1990, Poland's newly-elected president, Lech Walesa, sent a plane to London to fetch members of the Polish government in exile, a dusty, seemingly pointless body that for 46 stubborn years had preserved the ghost of the prewar Poland betrayed to Stalin at Yalta. Its last members, a decent but uninspiring bunch of Polish emigrés, solemnly handed over the state insignia that their distant predecessors had salvaged in 1939 (see our lead picture). Estonia's government in exile provided the legal bases for a new citizenship law, a paramilitary home guard, and, in 1992, a formal handover to the new, freely elected authorities.

Belarus springs eternal

For prize-winning doggedness, take a look at the Belarussian government in exile (in Canada). The version of Belarus it represents was an independent country for only nine months in 1918, before being squashed into the Soviet Union, with a chunk ending up in pre-war Poland. Memories of it are dim by now. Moreover, Belarus—though unattractively run, and heavily under Russia's thumb—is now once again an independent state.

Not only is the theoretical justification for the government in exile flimsy, but the people running it have very little physical connection with the state they represent. All the insignia of statehood were lost during the second world war, when the then-president had to flee Prague with a small suitcase. Only the government's oldest member, now aged 85, can claim to have been alive when the republic existed. The current president, a personable Canadian artist named Joanna Survilla, was born in a Belarussian-speaking family in pre-war Poland.

Never mind, say Mrs Survilla and her colleagues. They will keep going until Belarus's independence is no longer threatened. There are risks in being hasty. The Ukrainian government in exile, they point out, kept going in exile for nearly 70 years, but now feels it may have been a bit rash in handing over so promptly to a post-Soviet ruling elite that many now see as a bunch of crooks and traitors. So long as Russia still shows an appetite for gobbling up its neighbours, and so long as the local regimes are easily manipulated, Mrs Survilla argues, her government is still needed.

So what do she and her colleagues actually do? They preserve links with some of the wackier bits of the Belarussian opposition (chiefly the bit whose leaders are also, as it happens, exiled). One quite good idea was to start issuing citizenship documents, on the Estonian model, to cast doubt on the legitimacy of the country's de facto rulers. But money is limited, and the real effort goes into publishing. The Belarussian government in exile has published two massive volumes of its archives, which it is currently trying to collate from libraries all over Europe. Several more gripping instalments are planned.

The last time exile governments really mattered was during the second world war, when rightful rulers, squatted in London

For most governments in exile, there is nothing very much useful to do. “The whole purpose of our government was existence, not to make decisions,” recalls Peeter Luksep, a suave Swedish-Estonian businessman who served as his exiled government's last finance minister. Almost any decision involves exercising authority; but disobey a government in exile, and the worst that can happen is a spluttering press release, or perhaps suspension from some frowsty club in New Jersey or west London. The only exceptions are those outfits with some sort of military and security arm, like the Palestine Liberation Organisation, or those lucky enough to have a leader like the Dalai Lama, whose moral stature lends the whole organisation weight.

The innate absurdity of a government with nothing to govern is never far away, especially as time passes and new members are needed. A bunch of serious politicians fleeing totalitarianism is one thing. Digging around for someone to be minister of transport in a government that may have, at best, a rented minibus at its command looks ridiculous.

Give out more gongs

This combines with a third danger. If governments in exile are rich in one thing, it is symbolism. The Polish government in exile made a lot of Polish emigrés happy by awarding them medals for service to the diaspora, and these are recognised by the current (real) Polish state. But it is easy to get carried away in this lucrative business. A surprising number of people are prepared to pay good money for a document, bogus or not, awarding them the order, say, of the crowned white eagle with crossed laurels. One former minister in the Polish government is still happily, and profitably, issuing orders and decorations from a town on Britain's south coast.

Exile organisations are also easy for spooks of all sides to infiltrate, and may otherwise embarrass their reluctant hosts as time goes by. As a result, some countries would rather not have them on their territory. Belgium has stopped a Kurdish parliament in exile meeting on its soil. In 1968 Harold Wilson, a British prime minister eager to cosy up to the Soviet Union, handed over the Baltic states's gold reserves held in the Bank of England. France and Italy both handed over Baltic embassy buildings to the Soviets. In the case of the Baltics, history turned the tables, and Britain repaid their money in 1991. Other exiled governments wait and hope that history will pay dividends on their patience as well.

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Radio's golden age

The world according to Lux

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How radio drama cheered up, and changed, America

WHEN faced with hardship, everyone craves escape. During the Depression, Americans turned to their radios. Despite tumbling wages and rising unemployment, most found the money to buy a radio. By 1937, four out of five households owned at least one.

In the late 1920s and early 1930s, a typical radio station devoted over half its broadcasting time to music and the rest to education, literature, religion and “novelties”. This changed with the arrival of variety programmes such as “The Maxwell House Show Boat” and “The Kraft Music Hall”. Comedy shows, too, quickly gained popularity. “The Eddie Cantor Show”, Rudy Vallee's “Fleischman Hour” and “The Jack Pearl Show” were early favourites.

Yet it was dramatic radio, as it became known, that proved most popular of all. Nobody really knows who invented it in America. Most radio buffs trace its origins back to WGY, a station broadcasting from Schenectady, New York. In August 1922 WGY's dramatisation of “The Wolf”, a play by Eugene Walter, was broadcast to rapturous acclaim. This success led to the commissioning of “The WGY Players”, a show presenting radio adaptations of popular stage plays. It was the first regularly-scheduled series of its kind.

Radio's growing popularity scared Hollywood. By the early 1930s, almost all the major studios had forbidden their stars to appear on air. But they changed their tune when they realised that radio could spread a star's fame and boost box-office receipts. “45 Minutes in Hollywood” was the outcome of this new spirit of co-operation. The show featured scenes from upcoming movies performed by unknown actors, followed by interviews with their real stars. This concept was taken a step further in “Hollywood Hotel”, a variety show launched in 1934 and hosted by Louella Parsons (above, second left), a caustic and highly influential gossip-columnist. Not content with interviewing stars, Parsons made them act out scenes from films in which they were appearing. The stars did so without payment, partly for the publicity it brought them and their studios and partly because they were terrified of Parsons.

Enter soap

The next big development in dramatic radio came in 1934, with the arrival of “The Lux Radio Theatre”. Lux was a creation of the J. Walter Thompson advertising agency (JWT), which saw the show as a way of promoting Lux toilet soap—a product favoured, it was claimed, by “nine out of ten screen stars”. The Lux concept was simple: to broadcast one-hour adaptations of popular dramas interspersed with advertisements for Lux toilet soap. This it did very well.

Lux was based in New York and began by adapting popular Broadway plays. Only one of these adaptations, “Dulcy” from 1935, survives. The loss of the other 81 early shows, though regrettable, does not amount to a cultural disaster. Few of them made any effort to explore radio's dramatic potential. Innovations such as special effects and musical links between scenes were kept to a minimum, in favour of making listeners feel that they were listening to a show that was actually taking place in a theatre.

Although Lux got off to a promising start, ratings dropped over the second season. The show's producers solved the problem by decamping to Hollywood in 1936 and concentrating on adapting film scripts rather than Broadway plays. For many listeners, therefore, radio gave them their first taste of Hollwood. JWT executives also had the inspired idea of hiring Cecil B. DeMille as Lux's new host, duping listeners into believing he was also the show's producer. DeMille came with a formidable reputation as a purveyor of big-screen extravaganzas, and this rubbed off favourably on Lux, as did tales of his dedication to “producing” the show. Jeff Corey, an actor, remembers recording a programme in 1940:

> There were some terrible rainstorms and [DeMille] was at his ranch, and he got on a horse and he went through the muck and the floods and all that, and then got transportation and came to the theatre for the performance in his mud-splattered puttees and riding crop in hand.

On another occasion DeMille, who claimed he was recovering from surgery, arrived at the show by ambulance and read his lines from a stretcher, surrounded by a gaggle of Hollywood photographers.

Listeners couldn't get enough of the new Lux. Hours before airtime, a vast queue would form outside the studio at the Music Box Theatre in Hollywood. Seating inside was limited; sometimes up to 1,000 people were turned away. They did not always go quietly. A CBS press release from 1936 records that during the broadcast of “Madame Sans-Gene”, starring Jean Harlow and Robert Taylor,

> the overflow crowd would not disperse and finally crashed through the cordon of police right into the theatre while the show was going out over the air. The noise was thunderous but listeners were unaware that anything unusual had happened, for at the very moment the riot had started, the script called for a mob scene.

The very size of Lux's audience was a source of some anxiety for the actors. Many fretted over their delivery and timing—understandably enough, as they worked in the knowledge that around 30m people were hanging on their every syllable. Ruby Keeler confessed to terrors before her first Lux appearance in “Burlesque”. A panic-stricken Lupe Velez fled for the “little girl's room” mid-broadcast, only to be intercepted by one of the show's directors and returned to her microphone. Joan Crawford was fine during rehearsals for “Chained”, but in the hours before the show went live her hands began shaking so violently that she could not hold the script.

Lux's Hollywood run—an impressive 844 shows over nearly 20 years—kicked off with “The Legionnaire and the Lady”, starring Marlene Dietrich and Clark Gable, one of a number of adaptations in which stars from rival film studios were brought together on the radio. JWT's advertising was fairly unobtrusive by today's standards. Later on the programmes would be peppered with brief commercial announcements, but JWT's favourite approach was always the dramatised sketch. A 1935 version of “Adam and Eva” incorporated the following exchange:

> JANE: Poor Amy! Everybody noticed she wasn't having a good time! It's a shame. After all, Amy is quite pretty...
>
> SUE: And the men like her, really. Why, my brother says he'd go for Amy in a big way if it weren't for her complexion—
>
> JANE: No, really, did he? Gee—let's help Amy! Let's send her some Lux Toilet Soap—
>
> SUE: And I'll put in a note about how it guards against “cosmetic skin”. That's all the hint she needs...

DeMille (and later presenters) regularly puffed other Lux products, too. A good example is the introduction to a 1939 version of “Pygmalion”. “From the standpoint of the woman, ‘Pygmalion' is pure Cinderella”, the host intoned:

> Of course, the pumpkin coach and glass slippers are a little out of date. Present-day

> Cinderellas who want to catch the eye of some handsome prince are more likely to depend on that fresh-out-of-the-band-box look and are sure there's a good supply of Lux Flakes on hand. In fact, I suppose a modern Cinderella considers Lux Flakes standard equipment.

Silky as it may have sounded to listeners, Lux flirted with broadcasting disaster more than once. A 1948 dramatisation of “I Walk Alone” almost failed to make the air when the star of the show, Burt Lancaster, did not turn up. Just eight minutes before the scheduled broadcast, the director boldly decided that an unknown radio actor called Ira Grosell (later to find fame as the actor Jeff Chandler) would have to take Lancaster's place. The deception worked perfectly. Lancaster arrived at the studio 12 minutes into the broadcast and took over at an opportune point. Even the show's sponsors did not realise what had happened until they were told.

A different problem confronted the producers and cast of “The Doctor Takes a Wife”, a comedy which was aired the day after Pearl Harbour. The broadcast was interrupted in the second act by a CBS news bulletin reporting that unidentified aircraft were heading for San Francisco. A promise of further news bulletins threw the programme into complete disarray. Lux's writing team frantically hammered out an abridged ending to the drama, guessing how much they would have to cut out to make room for all the interruptions.

Most of the time, though, things went smoothly. Getting hold of the original material was easy enough. Rights for some screenplays were leased to Lux for a small fee, others were offered free in return for publicity. Adapting from film to radio turned out to be the hardest part. A scene from a 1951 Warner Brothers picture, “Goodbye, Mr Fancy”, in which a woman rejects a man's embrace, illustrates a typical difficulty. How to convey this wordless action on radio? A new line was written into the script: “Sorry I smeared your lipstick”, says the male character. As a historian of the Lux shows notes, this line “not only tips the listener off to what has transpired, but is in keeping with the character of the wisecracking newspaperman who said it and is a good piece of dialogue as well.”

Lux's huge popularity inspired any number of similar shows, among them “The Silver Theatre”, “The Gulf Screen Guild Theatre” and “The Campbell Playhouse”. The latter was really Orson Welles's “Mercury Theatre” with a new sponsor. It specialised in adapting classic novels and plays, most famously “War of the Worlds”, which created widespread panic when it was broadcast in 1938. Its success gave rise to a 1953 Paramount film—which was in turn adapted for Lux two years later.

Lux's final programme, “Edward, My Son”, aired on June 7th 1955. Cultural historians say that it was the growing popularity of television, rather than competition from other radio shows, that saw Lux off the air. No doubt television had a lot to do with it. But another explanation may be that people had less to worry about in the 1950s than they did in the grim 1930s and 1940s. They no longer needed to escape by imagining that, in their own sitting rooms, they were playing host to Hollywood.

How to hear them

You don't need a radio to listen to the Lux shows today. Specialist distributors such as Fair Pickings and Radio Showcase also offer many of the 656 surviving programmes on compact disc or audiocassette. The old-time radio website (http://www.old-time.com/toc.html) posts an extensive list of companies offering such a service, along with much other useful information on radio in its golden age. Purists who insist on listening to Lux on the radio (and who live in America) can tune in to WRVO, KNX or KPCC, all of which feature old-time drama. For extra authenticity, try wearing spats while doing so.

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The history of drinking

Uncorking the past

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Recreating old drinks provides an enjoyable form of time-travelling

IT MAY be small—each molecule is less than a billionth of a metre long, and consists of a handful of atoms of carbon, hydrogen and oxygen—but ethyl alcohol makes an excellent time machine. People have enjoyed alcoholic drinks since prehistoric times, making drinking one of the few strands that runs throughout the history of western civilisation. Appreciating the art, music or literature of long-vanished cultures can require years of study; recreating their drinks, and comparing them to what we enjoy today, is simple in comparison, not to mention more fun. The consumption of alcohol is so widespread in history, says Patrick McGovern, an archaeological chemist at the University of Pennsylvania, that drinking is, in effect, “a universal language”.

At the same time, of course, different cultures' attitudes to alcohol provide a window on a wide range of social and cultural practices. Alcoholic drinks have always been prized for their supposedly medicinal qualities, though exactly what these qualities were, and how best to take advantage of them, has only become clear in modern times. In short, the drinks of history are familiar enough that we can understand and appreciate them, while different enough to teach us something about the time and place in which they were originally drunk. Some of them can even be recreated at home, with commonly available ingredients.

The oldest surviving recipe in the world is for beer. It can be found on a 3,800-year-old clay tablet, as part of a hymn to Ninkasi, the Sumerian goddess of brewing. Sumerian documents, including the legal code drawn up during the reign of King Hammurabi around 1720BC, show that beer played an important role in Mesopotamian rituals, myths and medical practices. It was drunk by all members of society, from top to bottom, and tavern keepers were expected to abide by strict rules: the penalty for overcharging, for example, was drowning.

The oldest surviving recipe in the world (3,800 years old) is for beer. It formed part of a hymn to the Sumerian goddess of brewing

In addition to being at the heart of Mesopotamian culture, beer may even have been the foundation for the whole of western civilization. In the 1950s Jonathan Sauer, an American botanist, suggested that the original motivation for domesticating cereal crops (and thus switching from a nomadic to a settled lifestyle) might have been to make beer, rather than bread. The question of whether beer or bread came first has been debated ever since.

Beer makers of Sumer

Supporters of Sauer's idea have pointed out that many of the first cereals to be farmed were unsuitable for baking without tiresome preparation, but were suitable for brewing. Beer, they suggest, may have emerged in an attempt to make wild barley edible by mixing it with water and fruit. The thick beer produced in this way would be just as nutritious as bread, in addition to being slightly alcoholic.

Sumerian documents lend credence to this idea. For although Sumerian beer was made using *bappir*, a form of bread that could be stored for long periods, it seems that *bappir* was consumed only when no other food was available. In other words, its primary function may have been to store the raw materials for making beer in a convenient form.

If beer really does underpin western civilisation, that would explain its high status in Sumerian culture. The seal of Lady Pu-Abi, queen of the city of Ur around 2600BC, shows her drinking beer from a cup through a straw; just such a straw, made of gold and lapis lazuli, was found in her tomb, and can be seen today in the British Museum.

So what would this Ur-beer have tasted like? A number of attempts have been made to brew Sumerian beer according to the Ninkasi recipe. Two such tipples were made in the early 1990s at the Anchor Brewery in San Francisco, though they were not put on sale to the general public. They involved a certain amount of guesswork. One problem, says Michael Jackson, a beer expert who has tasted various pseudo-Sumerian beers over the years, is that modern brewers avoid the use of wild yeast, which would have made the original beers taste “winey and sour”. Another problem, he says, is that it is not clear what was added to ancient beers to balance the taste of the grain. It may well have been fruit, but could also have been honey.

This means there are various modern beers that may resemble the ancient kind. Mr Jackson notes that lambic beers from Belgium use wild yeast, for example; he also recommends Sahti, a Finnish beer that is flavoured with juniper, which he describes as “the last primitive beer to survive in Europe”. Philip Rogers, of the Anchor Brewing Company, says that the Ninkasi brew he tasted was reminiscent of mead; another beer, also based on the Ninkasi recipe, has been compared to Jade, a French organic beer.

To further complicate matters, says Mr McGovern, the distinction between beer, wine and mead starts to break down once honey and fruit are included in the brewing process. Furthermore, his analysis of drinking vessels, found in a tomb in central Turkey dating to around 700BC and thought to be that of King Midas, suggests that beer, wine and mead may have been mixed together in equal quantities to make an early form of cocktail.

A similar drink seems to have been adopted by the Minoan civilization of Crete after about 1500BC. Mr McGovern is currently collaborating with a Cretan wine maker to recreate this drink: six different blends of wine, spices, mead and beer are brewing at this very moment. His findings have also been used by Sam Calagione of the Dogfish Head Craft Brewery in Lewes, Delaware, to create a beer called “Midas Touch”, which was launched in June (see www.dogfish.com for details).

Galen's wine: Rome, c. 170AD

Some time towards the end of the second century AD, Galen of Pergamum, physician to the emperor Marcus Aurelius, descended into the Palatine cellars in Rome and conducted what must be regarded as one of the greatest vertical wine-tastings in history. Before his appointment as imperial physician, Galen had been a doctor at a gladiatorial school, where he had learned of the medical value of wine to disinfect wounds. Galen also believed that wine was an extremely potent medicine. So when it came to preparing a theriac, or medicinal potion for the emperor, Galen decided that it should be based on the finest wine in the world. “Since all that is best from every part of the earth finds its way to the great ones of the earth,” he wrote, “from their excellence must be chosen the very best for the greatest of them all.” He duly headed for the cellars.

In Roman times, it was universally agreed that the finest wine was that of the Falernian region near Naples. In fact, in a foreshadowing of the French *appellation* regulations, there were three types of Falernian wine. Caucinian Falernian originated from vineyards on the highest slopes of Mount Falernus; Faustian Falernian came from vineyards on the central slopes; and wine from the lower slopes was known simply as Falernian.

Perhaps surprisingly, given modern tastes, the most prized Falernian was a white wine. Roman sources indicate that the grapes were picked fairly late, resulting in a heavy, sweet wine that was golden in

colour and could be aged for decades. The nearest contemporary equivalents would appear to be long-aged sauternes wines, such as Chateau d'Yquem. But Falernian would have tasted very different, for a number of reasons. For a start, it was allowed to maderise, which caused it to turn amber or brown. A modern drinker presented with a glass of Roman wine might also notice that its taste was affected by the pitch or resin that was used to make impermeable the earthenware jars in which the wine was stored.

But the most dramatic difference between Roman and modern wine is that the Romans never drank wine on its own; they always mixed it with other ingredients. Indeed, the practice of drinking wine straight was regarded as barbaric. Most often, wine was simply diluted. The amount of water added depended on the circumstances (it was up to the host to decide) and the temperature, but the proportions were typically one part wine to three parts water. Diluting wine served two purposes: it made it into a thirst-quenching drink that could be consumed in large quantities, and the presence of alcohol also made the water safe to drink, an important consideration in the growing cities of the Roman Empire, as it still was in 18th-century Europe.

On occasion, wine was also diluted with seawater. According to Pliny the Elder, one of several Roman authorities on wine, this was done “to enliven the wine's smoothness”. But water was not the only additive. Snow was sometimes mixed with wine to cool it; honey was sometimes added to create an aperitif known as *mulsum*; and various herbs and spices were commonly added to wine to mask the fact that it had turned to vinegar. Keeping wine in good condition was difficult in Roman times, so most wine was drunk within a year of production; “old” wine was categorised as wine more than a year old.

On occasion, wine was diluted with seawater. This was done, according to Pliny, “to enliven the wine's smoothness”

As a wine-lover, Galen must have relished the prospect of searching the imperial cellars for the finest Falernian. He started with 20-year-old Falernian and then tasted earlier and earlier vintages. “I kept on until I found a wine without a trace of bitterness. An ancient wine which has not lost its sweetness is the best of all.” Eventually, Galen settled on a Faustian Falernian as the finest wine in existence. Alas, he did not record the year. Earlier in the Roman period, the general consensus had been that the Falernian of 121BC was the best vintage; according to Pliny, this wine was still being drunk 160 years later, when it was offered to Caligula. So it seems likely that Galen would have had Falernian vintages as much as 200 years old available during his tasting session.

But while Falernian was the finest Roman wine, it was hardly typical of what Romans like Galen drank every day. How can such wines be recreated? Hervé Durand, a French wine maker, has set up a “Roman vineyard” near Nîmes in the south of France, where he follows the wine-making procedures described by Roman writers as closely as possible. He produces three pseudo-Roman wines: Turriculae, a white wine that is lightly flavoured with salt water; Carenum, a spiced red wine; and Mulsum, which is flavoured with honey. Similarly, several wine makers in Italy make wines that trade on the Roman connection. But they are not designed to be diluted or mixed with honey and they are not full of herbs. In other words, they are quite palatable, and thus, alas, not authentic.

According to Jerry Paterson, an expert on Roman wine at the University of Newcastle-upon-Tyne in England, the contemporary wines that are most similar to Roman wines are young, sweet white wines, such as those made in Germany or around the French town of Vouvray. The nearest red wine, he suggests, is Italian wine made with the Aglianico grape. Add half a cup of honey to a bottle of white wine, and refrigerate, to make *mulsum*; or simply add water in order to drink wine, Roman style.

Shakespeare's sack: England, 1598

On the afternoon of April 19th, 1587, Sir Francis Drake led his convoy of 31 ships into the port of Cadiz, where the Spanish navy was being prepared to invade England. The Spanish were taken completely by surprise, and Drake's men quickly looted, sank or burnt every ship in sight. After clearing the harbour of stores and fending off a Spanish attack, Drake and his ships escaped without the loss of a single man. Back in England, Drake became a national hero, and his daring attack became known as the “singeing of the King of Spain's beard”.

Bridgeman

Wedding guests by the sackful

As well as setting back the Spanish plan to invade England by several months, Drake's daring attack sealed the success of a popular new drink. For among the stores that he plundered from Cadiz were 2,900 large barrels of sack, a wine made in the Jerez region of Spain, and the forerunner of today's sherry. Its popularity stemmed from a law, passed in 1491, that wines made for export should be exempt from taxes. (The name sack is derived from the Spanish word *sacar*, meaning to take out, or export.) The wine makers of Jerez looked for overseas markets, and sack started to take off in England. In 1587, the celebratory drinking of the sack brought back from Cadiz by Drake gave it a further boost and made it hugely fashionable, notwithstanding its Spanish origin.

For obscure chemical reasons, sack was an unusually long-lasting and robust wine. This made it ideal for taking on long sea voyages, during which alcoholic drinks acted as a vital social lubricant that lessened the hardship of spending weeks packed into a cramped ship. Columbus took sack with him to the new world in the 1490s, making it the first wine to be introduced into the Americas. When Magellan set out to circumnavigate the world in 1519 he spent more on sack than he did on weapons.

But it was in England that sack was most popular. By far the most famous tribute to it was written by William Shakespeare in 1598. In “Henry IV, Part 2”, Falstaff sings its praises in a long speech and concludes: “If I had a thousand sons, the first human principle I would teach them should be, to forswear thin potations and to addict themselves to sack.” This was, of course, an anachronism: the play was set long before sack was introduced to England. But it is tempting to conclude that Falstaff's words reflect Shakespeare's own love of sack, which was widely shared. His fellow playwrights Ben Jonson and Christopher Marlowe also wrote hymns to sack; Marlowe was probably drinking it on the night he was killed in a tavern brawl.

In 1604, sack was granted official recognition of sorts when James I issued an ordinance limiting its consumption at court. “We considering that oftentimes sundry of our nobility and others, dieted and lodged in our Court, may for their better health desire to have Sacke, our pleasure is that there be allowed to the sergeant of our cellar twelve gallons of Sacke a day, and no more.” By this time sack was popularly known as sherris-sack (sherris being a corruption of Jerez), which eventually became the modern word sherry.

Sack was still popular in the late 17th century, and appears frequently in the diary of Samuel Pepys. On the morning of March 5th 1668, Pepys was summoned to Westminster to defend the Navy Office's practice of paying sailors with negotiable bills instead of money. On the way he decided to fortify himself: “to comfort myself did go to the Dog and drink half-a-pint of mulled sack”. Pepys also refers several times to “sack-posset”, a medicinal brew of sack, sugar, spices, milk and beaten eggs that was traditionally served at weddings in early colonial America.

What did sack taste like, and can its taste be experienced today? For many years it was believed that sack derived its name from *seco*, meaning dry, and that it was therefore a dry wine. But according to Julian Jeffs, an expert on the history of sherry, this is wrong, and sack was actually sweet. It was not aged for more than a year or two, unlike modern sherry, which is usually aged for at least three years. This suggests, says Mr Jeffs, that sack probably tasted quite similar to a cheap, young oloroso sherry. It was often further sweetened with honey or sugar: hence Falstaff's nickname of “Sir John Sack-and-sugar”.

A glass from the past

Recreating the drinks of the past is an intellectual challenge, says Mr McGovern. It is an inexact science, and the results can be horrible. “But once you've created something that's tasty and delicious, it's like you've brought the past back to life,” he says. “It makes it much more real for people—it isn't just something forever buried.” Better still, in addition to recreating a tiny aspect of the past, there is now strong scientific evidence that alcohol, taken in moderation, can help you travel forward in time too, by reducing the risk of heart disease by as much as 40%. Cheers!

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The downsized male

Sometimes it's hard to be a man

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Hulton Getty

Even feminists feel sorry for the state of men today. It must be bad

“I FIND myself increasingly shocked at the unthinking and automatic rubbishing of men which is now so part of our culture that it is hardly even noticed,” declared Doris Lessing, whose novels turned her into a feminist icon in the 1960s, in a speech earlier this year. “Men seem to be so cowed,” she continued, “that they can't fight back, and it is time they did.”

The appeal to the downtrodden male to have courage, rise up and throw off his shackles is spreading. In Britain, there were cheers of congratulation for boys earlier this year when it emerged that, in nationwide examinations, the gap by which girls outperformed them had narrowed. All over America, there is a loose mass of men's groups, urging men to stand up for their rights over bias in the family courts or the all-male draft.

Agonising about the male predicament has become a fashionable hobby for both men and women. Just reading the dizzying list of titles devoted to the subject is enough to provoke anxiety: “On Men: Masculinity in Crisis”; “The Myth of Male Power: Why Men are the Disposable Sex”; “A Man's World: How Real is Male Privilege and How High is its Price?”; “Stiffed: the Betrayal of the American Man”. If that is not enough, try this from Anthony Clare, a British psychiatrist and author of “On Men”:

> At the beginning of the 21st century it is difficult to avoid the conclusion that men are in serious trouble. Throughout the world, developed and developing, antisocial behaviour is essentially male. Violence, sexual abuse of children, illicit drug use, alcohol misuse, gambling, all are overwhelmingly male activities. The courts and prisons bulge with men. When it comes to aggression, delinquent behaviour, risk taking and social mayhem, men win gold.

With a big dollop of generalisation, male angst can be reduced to three grievances. Men have been emasculated by the loss of traditional functions, women have not; women have choices, men do not; men are emotionally illiterate, women are not.

Men, goes the first complaint, have been robbed of their traditional roles as providers, protectors and even procreators. The heavy muscular jobs—building ships, digging coal, banging metal—from which men derived an assertive, productive masculinity have disappeared. They have been replaced by jobs that favour nimble fingers, flexible minds and ready smiles: answering telephones, assembling

computers, scanning bar-codes. Not only have women snapped up these jobs, but such occupations seem unmanly.

Much of this lament is deeply nostalgic. “The shipyard represented a particular vintage of American masculinity, monumental in its pooled effort, indefatigable in its industry, and built on a sense of useful productivity,” gushes Susan Faludi in “Stiffed”, her 1999 chronicle of the masculinity crisis. In reality, few men are crying out to return to the pits.

Behind some of the more self-pitying writing on male victimhood lurk some serious points. Women are stealing up on men in the labour market. While the share of American women of working age who are economically active—meaning those who either have a job or seek one—has grown from 51% in 1973 to 71% in 2000, the share of economically active men has dropped from 86% to 84%. The trend is similar in Britain and France.

Since the surge in male inactivity is greatest among those with few or no skills, recent male educational performance supplies little comfort. Back in 1960, 66% of all American degrees were awarded to men; by 1997, though both sexes were earning more degrees, the male share of the total had dropped to 44%. In 1997, American women were graduating with nearly a third more masters' degrees and a quarter more college degrees than men. In Britain, since 1988, girls have outperformed boys at the national examinations taken at the age of 18; today, they outshine boys even in “male” subjects such as maths and economics.

For this predicament, blame whatever best fits your prejudices. Have newly assertive women, freed by contraception to postpone childbearing for careers, and liberated from material dependence on men, undermined contemporary manhood? Or has the shift from a blue-collar to a white-collar economy placed demands on all workers for “feminine” qualities such as flexibility, an ability to cope with uncertainty, and no expectation of power?

Increasingly beset by self-doubt, men are confronted with the breezy self-confidence of independent young women

Whatever the cause, this diminished male, some argue, makes a poor mate. His wallet is thin, his self-esteem deflated, his masculinity shrunken. The argument echoes that made since the 1960s by sociologists and politicians about the breakdown of the black American family. With so many black men either out of work, away in the army, locked up in prison or roaming the streets in gangs, black women were hardly spoilt for choice. Hence marriage rates declined, argues William Julius Wilson, a black liberal sociologist at Harvard University.

Now white men too seem to be losing their appeal. In England, according to a recent government report, an astonishing 10% of men aged between 30 and 34 were still living with their parents in 2000, compared with just 3% of women of that age. English baby-boomers of the 1960s are staying unmarried longer than any other generation since that born in 1916, whose marriages were delayed by the second world war. Some of this can be explained by a rise in cohabitation, but not all of it. Women no longer need men even for reproduction.

If current trends continue, 16% of English men born in 1964 will neither have married nor be cohabiting by the time they are in their 50s—double the share of those who were born in 1946. “At your age,” says the female lead to Johnny Downs, a single 30-something New Yorker in “The Catsitters”, a recent novel by James Wolcott, cultural critic of *Vanity Fair*, “women suspect that if you haven't gotten married or at least engaged, there may be something wrong with you.”

Unsurprisingly, male health too is under stress. According to a recent British government report, men are more likely than women to commit suicide, suffer from coronary heart disease, have a serious accident or drink too much alcohol. Male sperm counts, too, are declining. Dr Clare, the British psychiatrist, says that his patients used to be middle-aged women whose children had left home. Today, they are “middle-aged men, who gave their lives loyally to this company or that corporation, who sacrificed everything for it, now ruthlessly put out to grass, compulsorily retired, downsized, rendered redundant.”

What a man's got to do

Female professional success, however, is not the source of men's second lament. Along with their success, women have also won social acceptance for their right to reject work in favour of motherhood. In other words, women can hold the briefcase, or the baby. Or they can hold both. Or they can hold the

briefcase, then the baby, then the briefcase again. But at least they can choose. As one men's rights campaigner in New Zealand puts it: “A man's got to do what a man's got to do, but women can do anything.”

“If we stay home, we're outcasts, flung from our 'natural' role as provider and alpha dog.”

For men, it is contended, that choice is unavailable. This strand of complaint joins two loosely related voices. The first is that of the professional man, trapped on the one side by the fierce social expectation of “man as provider”, and on the other by the fierce social suspicion of “man as stay-at-home father”. Fatherhood websites are crowded with the anguished pleas of would-be full-time fathers who have to confront the scary squads of mothers at the local park or the school gate. “If we stay home, we're outcasts, flung from our ‘natural' role as provider and alpha dog,” wrote one man for salon.com recently. “If we consider, for a moment even, my father's approach,” he continued, “we are cast, quite fairly, as Neanderthals.” America is awash with books offering working fathers consolation and tips on how to cope.

The other voice is more bitter and political. It sees men as victims of 30 years of a women's movement which blamed men for women's troubles. This group tends to view matters as a zero-sum game: the more choices available to women, the fewer available to men. Warren Farrell, the author of “The Myth of Male Power”, who is regarded as beyond the pale by many feminist writers, claims that the legal and social discrimination faced by men who want to be custodial fathers today is as bad as that faced by women who wanted a demanding professional career in the 1950s.

At its least political, this is a movement to fight what is seen as a legal conspiracy to divide fathers from their children. Most family courts award custody to mothers, while men are hounded by child-support bills. As single fatherhood has grown, so the fathers'-rights industry has flourished. In 2000, there were 4.4m American single-father families, or 4.2% of all households, up from 3.4% in 1990. A quarter of all American single-parent families are now headed by men.

On the opposite flank is the conservative fatherhood movement, with its links to the religious right. Whereas the men's-rights lot argue that their disconnection from their children is involuntary because the divorce courts discriminate against them, the fatherhood lot argue that men should not get divorced in the first place. The National Fatherhood Initiative (NFI), a conservative lobby, has blossomed in recent years. It condemns “deadbeat dads” and vigorously disapproves of divorce.

Its influence is great. Wade Horn, formerly head of the NFI, is now the assistant secretary for children and families under Tommy Thompson, President George Bush's secretary for health and human services. Where once the political emphasis was on the irresponsibility of women, getting pregnant while young and single, the culprits now, it seems, are men. “Fatherless households” have replaced “female-headed households” as the subject of study, subtly shifting the blame. “In 1960, fewer than 10m children did not live with their fathers,” stated the department earlier this year:

> Today, the number is nearly 25m. More than one-third of these children will not see their fathers at all during the course of a year. Studies show that children who grow up without responsible fathers are significantly more likely to experience poverty, perform poorly in school, engage in criminal activity, and abuse drugs and alcohol.

Men, it seems, cannot win. They are the new guilty and the new victims. Worse, increasingly beset by self-doubt, men are confronted with the breezy self-confidence of independent young women as depicted in popular culture. Take “Sex and the City”, a TV series about the sexual conquests of single New York women. Or Renault's “Size matters”, a commercial for a motor car narrated by a mocking woman wielding a tape measure. Or “The Simpsons”, a cartoon family of feckless men and savvy women.

Big boys do cry

The third source of male angst is to do with emotion. There is nothing new in the idea that men are conditioned to suppress emotions, but a movement now exists to reclaim the right to express them. Much of this grew from the American “drumming retreats” inspired by Robert Bly, author a decade ago of “Iron John”, a call for men to get back in touch with the “wild man” within. Today, men-only retreats promise to achieve “emotional

release" and to "use sacred space as a container wherein men can be awakened to their masculine power". As the publicity for one recent event in California put it: "The wild and woolly raw energy of maleness via drumming, dancing and story-telling opens the door to authentic, heartfelt expression."

This movement, with its heavily west-coast flavour, is the one most likely to make European men squirm. It is much mocked and ridiculed, to its own exasperation: "Our gatherings rarely include drumming, hugging trees or bashing parents," says one retreat organiser. Strip away some of the gush, and two concerns emerge: feelings and fathers.

If you can't beat him, join him?

In recent centuries men have been taught not to show their feelings, but to sublimate them in competitive behaviour. Now they are questioning that self-sacrifice. To be fully-rounded individuals at ease with themselves, it is asserted, men need to learn to weep.

Some of this has reached less demonstrative corners of the world than America's west coast. In Britain, football, that traditional icon of hard muscular male solidarity, is now regarded as a medium for softer emotions too. After tears were famously shed by Paul Gascoigne, an England player, during the World Cup in Italy in 1990, intellectuals went to town on him. Gazza, as he is known, was "fierce and comic, formidable and vulnerable, orphan-like...tense and upright, a priapic monolith," enthused Karl Miller, founding editor of the *London Review of Books* and, at the time, professor of English literature at University College, London. The drama of football, it is asserted, helped grown-up educated British men to learn to cry.

A more important emotional catalyst appears to be the death of a father. A generation of men has been brought up by women, with shadowy fathers who were either physically absent, because of divorce or long working hours, or absent in spirit, because that was how fathers behaved. The death of a father, by causing men to confront the gaps in that relationship, can make them try to improve their relations with their own sons. After travelling America talking to scores of ordinary men, Ms Faludi found that "a broken relationship with a father almost always surfaced as the primary preoccupation underlying all others."

As if all this were not enough to worry about, men are not even safe, it seems, from the indignity of being seen as purely sexual objects. This experience, of course, is one which women have known for millennia. Now men, too, are subject to the physical insecurities this can provoke. In mainstream culture, the naked male body is no longer taboo. "Puppetry of the Penis", for instance, a performance of "genital origami" by two Australian actors, barely caused a stir when it ran at fringe theatres in Britain recently.

Worse, an accompanying cult of physical perfection—pectoral body-sculpting, plastic surgery, penile implants, Viagra—has taken root too, celebrated in men's fitness magazines. "No wonder men are in such agony," writes Ms Faludi. "Not only are they losing the society they were once essential to, they are 'gaining' the very world women so recently shucked off as demeaning and dehumanising."

The alpha male lives

Ah, detractors will reply, this self-analysis is all very well, but what about Britain's laddish culture, or Hollywood's glamorisation of male aggression? Surely the self-assured alpha male is alive and well? After all, laddishness, which exploded in Britain in the 1990s with the boom in sales of magazines such as *Loaded*, FHM and *Maxim*, unapologetically celebrates heterosexual hedonism and a defiant fecklessness. *Loaded*, declared James Brown, its first editor, was for men who "have accepted what we are and have given up trying to improve ourselves." Twenty years ago, *Reader's Digest* was the most popular monthly magazine among British men; today it is FHM, which sells more copies each month than *Cosmopolitan* and *Vogue*.

But perhaps such phenomena could also be seen as a response to all those male anxieties. "Lads' mags are all about the denial of the real problems that men are facing," suggests Peter Howarth, editor of British *Esquire*. Dr Clare goes even further: "Men, renowned for their ability and inclination to be stoned, drunk or sexually daring, appear terrified by the prospect of revealing that they can be—and often are—depressed, dependent, in need of help."

In the end, while many of these male grievances are heartfelt, they need to be put in context. Full-time

working women in America still earn, on average, only 72% of the wages men receive. Women occupy only 14% of the seats in America's Congress. Today not a single woman runs any of the G8 governments, finance ministries or central banks.

Even the preponderance of dysfunctional men in popular culture probably says less about a masculinity crisis than about the fact that men are still largely in charge. Men can be mocked, because men are not—yet—as vulnerable as women. You never kick a man when he is down.

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The history of the tango

A sense of where you were

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Corbis

Tango, that “reptile from the brothels”, is making a comeback

TAXI-DRIVERS in Beijing have Mao Zedong as their talisman. In Buenos Aires, Jorge Malcinas has hanging from his rear-view mirror a picture of the late Osvaldo Pugliese, the great bandleader of tango. Indeed, the driver has dozens of pictures of Pugliese to bring him good luck: about the cab, his person and his house. He needs them more than most mortals do, he explains, for he lives a stone's throw from the house of Carlos Menem, Argentina's ex-president, who is widely reckoned to bring “the curse” to anyone with whom he comes into contact. Mr Menem used to be banned from attending matches of both his favourite football team, River Plate, and the national side, because of the perceived ill effects he brings.

Mr Menem himself might usefully seek to have some of Pugliese's powers rub off on him. That is what Juan Domingo Peron, Argentina's flawed if charismatic leader, did. When he returned to power in 1973, Peron begged Pugliese to forgive him for his past mistreatment of him. Pugliese used to wear his pyjamas under his tuxedo in anticipation of arrest, for—perhaps because he was a staunch communist—he liked his creature comforts in jail. Whenever he was in prison, his band would place a red carnation in a bottle on top of his unmanned piano.

On any day of the week, lovers of tango can dance to Pugliese's classic, “La yumba”, in Buenos Aires, Montevideo, New York, London, Madrid, Paris, Amsterdam, Helsinki or Tokyo. Dozens of other cities, including Beijing, hold *milongas,* get-togethers at which both tangos and *milongas* are danced, at least once or twice a week. At these, there is always an itinerant or two—a banker in town to work on some deal, an exchange student, an actor, a mother visiting her daughter—whose passion for tango has led them, perhaps through the Internet, to this spot. No one needs, or wants, to press people on their background. At a *milonga*, it is enough to share this madness for tango.

What is tango? “A sad thought you can dance”, say some

But what is tango? The commonest description—the vertical expression of a horizontal desire—is the least adequate: that applies to nearly all dances. “A sad thought you can dance”, a comment on the wall of the National Academy of Tango in Buenos Aires, is closer to the mark, though tango was not always a sad or even a nostalgic music, and can certainly be a joyful one. Besides,

though Luis Alposta, a poet of tango, is surely right when he says that the tango is “the most beautiful dance in the world for couples”, he is quick to point out that tango has three elements: music and song as well as dance.

The lyrics of tango, based on copious use of *lunfardo*, the port-city's hoodlum slang, have grown over the decades to create a vast, chaotic tableau of Buenos Aires life, in a language that is still topical and accessible. The music has a life of its own, too. Ever since Astor Piazzolla, the genius of Argentine music, demanded in the 1950s that people listen rather than dance, plenty of talented musicians have disdained dancers and even singers. Nestor Marconi, perhaps the finest *bandoneon* (concertina) player of the post-Piazzolla generation, says that before Piazzolla, “tango was a music in service to the dance; now it's a music in itself.”

And the elements of the music? One recent afternoon in Buenos Aires, Emilio Balcarse, once one of Pugliese's chief arrangers, is putting a young tango orchestra through “La yumba”. Afterwards, he describes the composition as: “A rhythmic force that develops strikingly to the point where it dissolves into something much more soft. First, a strong sense of rhythm; then everything is much sweeter, more intimate; finally, it's back to the main theme, but with a solo, in this case the violin, inside the rhythmic structure.” That's as good a summing-up of a tango as you can get. Since Piazzolla, however, the classical harmony and counterpoint on which tango was built have been stretched to the limits, with new rhythms and instruments added to the brew.

Unravelling the secret

Half a century ago, Argentina's greatest writer, Jorge Luis Borges, put his finger on the problem of tango:

> The tango can be debated, and we have debates over it, but it still guards, as does all that is truthful, a secret. Dictionaries of music record its short, adequate definition, approved by all: ...[it] promises no difficulties, but the French or Spanish composer who then follows it and correctly ‘crafts' a tango is shocked to discover he has constructed something that our ears do not recognise, that our memory does not harbour, and that our bodies reject.

Borges had another insight, which he appears to have borrowed from Oscar Wilde:

> Music reveals a personal past which, until then, each of us was unaware of, moving us to lament misfortunes we never suffered and wrongs we did not commit. For myself, I confess that I cannot hear ‘El marne' or ‘Don Juan' [two tangos] without remembering in detail an apocryphal past, simultaneously stoic and orgiastic, in which I have challenged and fought, in the end to fall silently in an obscure knife-fight. Perhaps this is the tango's mission: to give Argentines the belief in a brave past, in having met the demands of honour and bravery.

No two people agree about the origins of tango. The only thing about the tango that can be stated with conviction, Borges says, is that it was born in the brothels. Hence the lascivious movements, the suggestive titles—“El choclo” (the corn-cob), “El fierrazo” (the iron rod), and the way pairs of men would dance the tango on street corners, since the women of the neighbourhood were repelled by its debauchery. But Ricardo Garcia Blaya, a contemporary writer on tango, says of the brothel theory that “nothing is more absurd and incorrect.” Tango, he insists, was born in the dance halls; there, polkas and waltzes also had suggestive names.

One dominant camp says that the tango was accepted by the upper classes of Buenos Aires only after the dance had been taken up with passion, just before the first world war, in Paris, and that the Vatican lifted a ban on the dance only after Pius X himself had been treated to a demonstration. Complete fabrications, say several modern historians. As for the word itself, some say “tango” comes from an African word, *tambo*, meaning a gathering place for slaves and freed blacks to dance; others say it comes from the Spanish *fandango*; yet others have entirely different explanations.

Since everyone has a claim to know the origins of tango, *The Economist* will not be left out. In 1880, Buenos Aires had a population of 210,000. By 1910 that number had nearly sextupled, to 1.2m. It was to Buenos Aires that new railroads brought livestock off the vast pampas, to be slaughtered and refrigerated in the (mainly English) meat-packing plants, and then shipped out around the world. These boom-days brought European immigrants—chiefly Italians, Spaniards, French and Germans—in droves to settle on the edge of the city. (The history of Buenos Aires, Bruce Chatwin once said, lies in its telephone directory.) The fencing off of the pampas, and the mechanisation of livestock transport, brought

displaced gauchos, or cowboys, to the same urban fringes. The immigrants, uprooted from their home continent, and the gauchos, uprooted in their own country, met and blended in a new town they soon embraced as their own. The music they made together managed to sing at once of a sense of loss and of a deep attachment. Nostalgia and sentimentality: two strands of tango.

Cowboys, blacks and payadores

The gauchos brought with them their guitars and their *musica criolla* of essentially Spanish origin: *habañeras*, *fandangos*, *milongas*, *vidalitas* and *cifras*. The new immigrants brought their ability to read and write music, a broader array of instruments, and Italian opera traditions. At some stage the *bandoneon* arrived, an impossible instrument ("a chaos", says Mr Balcarse), with four registers and little order to its buttons. Yet, somehow, this German instrument for playing hymns was subverted into something diabolically expressive. "You can play tango without the *bandoneon*," says Leopoldo Federico, one of the surviving great musicians of tango's golden era in the 1940s and 1950s, "but the history, roots and direction of tango are inconceivable without it."

Today, tango is reviving again

Argentine blacks may also have thrown their influence into the mix with the *candombe*—the only Rio Plata dance that clearly has African, and even Indian, rhythms—and the *milonga*, a jaunty, 2/4 music which to this day is danced to add variety to a languid stream of tangos. But the black influence is hard to gauge, for few remain in the city today. Many were sent to fight in the genocidal campaigns against the Indians, in the Paraguayan war of the late 1860s and in the civil war of a decade later; others left for Montevideo, in Uruguay. Chatwin was not entirely right: today, Buenos Aires is a whiter city than almost any in Europe.

Gradually the tango spread from the urban fringes, through the suburbs, to the centre of Buenos Aires. It was helped on its way by *payadores*—itinerant singers with barrel-organs, whose shocking notes must have wafted through the windows of more respectable, but grateful, homes—by the dance halls that sprang up, and, for those who insist, perhaps by the brothels. At the start of the first world war, tango was on its way to pushing out other popular styles of dance. Between 1903 and 1910, over 1,000 records were released in Buenos Aires, a third of them tangos. In the next decade, 5,500 records were issued, half of them tangos.

Today, tango is reviving again. "Throughout its history you hear that tango is finished," says Daniel Melingo, one of a younger generation of tango musicians. "People talk as if it's their own youth that's over." And that attitude, he says, is what feeds tango's nostalgia, which in turn generates new expressions of dance, music and song.

Adriana Varela, a powerful female vocalist of tango, says that Buenos Aires is a city that too often turns its back on the vast Rio Plata. "But whenever it turns round to face the river that shaped it, the city rediscovers everything that touches the people of Buenos Aires. My job is to take what the great poets of Buenos Aires have wrought, and to convey the landscape to which I belong." Tango is a sense of place more than it is a set of musical rules. As Borges put it long ago:

> We might say that without the evenings and nights of Buenos Aires, a tango cannot be made, and that in heaven there awaits us Argentines the Platonic idea of the tango, its universal form.

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The Star of Bethlehem

A sign of the times?

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There are many theories about what it was that foretold the birth of Christ. Here's another

“TWINKLE, twinkle, little star. How I wonder what you are.” So goes the old nursery rhyme. But maybe the modern version should read, “Twinkle, twinkle, little star. How I wonder what you were.” Not just because we don't see stars as they are, only as they were when their distant twinkle first set out to reach our eyes, but also because one great star-mystery revolves around where they were at the time when Christ was born.

The mystery begins with the Gospel according to St Matthew, and the story of the wise men led from the east. “And lo, the star, which they saw in the east, went before them, till it came and stood over where the young child was.”

Astronomers, astrologers and Christians have long speculated about what this perambulating star might have been. None of the other gospels mentions it, yet few aspects of the Nativity have excited so much interest as this brief reference by Matthew. The latest theory comes from Sir Patrick Moore, Britain's most venerable astronomer, whose book “The Star of Bethlehem” was published in September 2001 by Canopus Publishing—yes, also the name of the second-brightest star in the firmament.

Sir Patrick takes a scientific approach to the issue. He considers a number of astronomical options—a conjunction of planets, a supernova and a comet, among others—and then plumps for the one that he thinks best fits the circumstances. Most probably, he thinks, it was a couple of meteors—so called “shooting stars”, nothing more than cometary debris streaking its way into our atmosphere. As an explanation for such a portentous mystery, this has to be too mundane.

The great Austrian astronomer Johannes Kepler, the man who showed that planets move round the sun in ellipses, not circles, thought that the Star of Bethlehem was probably a nova or a supernova, a star brilliantly blowing up. He was influenced by observing a spectacular one himself in 1604.

Jupiter, maybe?

Since Kepler, interest in the Star of Bethlehem has waxed and waned, a bit like a supernova itself. It has, however, been intensifying in recent years. Two books appeared just before Sir Patrick's, presenting contrary views. In “The Star of Bethlehem: An Astronomer's View” (Princeton University Press, 1999), Mark Kidger, a British astrophysicist, supports the nova theory. But he thinks that it was not just a nova, but a nova plus a series of planetary get-togethers that led the wise men to Bethlehem all those years

ago. In particular, he points to a nova that occurred in the constellation of Aquila in 5 BC, and a couple of unusual planetary conjunctions that took place in 6 and 7 BC.

Mr Kidger's book was followed by “The Star of Bethlehem: The Legacy of the Magi” (Rutgers University Press, 1999), written by an American astronomer, Michael Molnar. Mr Molnar takes a different tack, arguing that it was not an astronomical event that guided the wise men on their journey, but an astrological one. He may not have the best theory, but he certainly has the best story.

In 1990 he bought an ancient Roman coin on which was depicted a ram looking over its shoulder at a star. Significantly, the ram is the symbol of Aries, one of the constellations of the zodiac—the zodiac being the “belt” of constellations through which the planets move. Astrologers read great human significance into the positions of the planets and the sun vis-à-vis the various constellations of the zodiac, particularly at the moment of a person's birth.

Mr Molnar, realising that Aries (the astrological sign for the period between March 21st and April 20th) was traditionally a sign of special significance for the Jews, then discovered that Jupiter, the planet of kings, was undergoing a lunar eclipse on April 17th in the year 6 BC, precisely at a time when it was “in the east”. Eureka! Any really wise man seeing this event at the time would have known that it signified that a king was (or was about to be) born among the Jews.

Sir Patrick scatters an ice-cold shower of meteorites on this theory by pointing out that the eclipse on April 17th 6 BC occurred in daylight, and would not have been visible to any man, no matter how wise. On one thing, though, the speculators all agree. Whatever it was that the three wise men saw in the east, they didn't see it on December 25th in the year zero. Because of some double-counting by subsequent calendar-makers trying to date time from the birth of Christ, Christ was actually born four or five years “Before Christ”. As for his actual birthday, Mr Molnar plumps for April 17th; Sir Patrick favours early February.

Planet power

It is not necessary to believe in astrology to accept that it had a great influence on the lives of the ancients. Even Sir Patrick, the strict scientist, acknowledges that “we must always bear in mind the purely astrological significance of the star, and we must accept that the wise men were astrologers first and foremost”.

Astrology and astronomy have been inextricably intermingled for the greater part of man's time on earth. Astrology before Christ concentrated on the movement of those planets identified at the time (Jupiter, Mars, Mercury, Saturn and Venus), plus the moon and the sun. Together, these made up the seven *stellae errantes* of the Romans, and it was the astronomers' observations of their relationship to the “fixed stars”, fixed, that is, vis-à-vis each other, that provided astrologers with their raw material.

The influential astronomer Claudius Ptolemy, who lived near Alexandria in the second century AD, was also the author of “Tetrabiblos”, a standard astrological text. He was so sure of the underpinnings of astrology that he wrote, “Should Venus be conjoined with Mars, and Jupiter also presents himself, Mars at the same time being under the rays of the sun, women will then mingle in intercourse with servants and persons meaner than themselves, or with aliens or vagabonds.” Beware the next such conjunction of these planets.

Why, if God was in the heavens and controller of the universe, did he not give advance warning of sending his only son to earth?

The Chinese also mixed their astronomy with astrology. Their astronomers observed Halley's comet in 240 BC, and 20 years later the emperor, Shih Huang, ordered all books to be destroyed except those which related to agriculture, medicine and astrology—the only sciences he thought useful to mankind. In all ancient civilisations, it was assumed that terrestrial events had astronomical causes. The Chinese believed that the rising of Arcturus, the fourth-brightest star in the sky, caused spring to burst forth, while the Egyptians thought that the appearance of Sirius, the brightest star in the sky, brought about the annual flooding of the Nile.

Astrology played a big part in the life of the early Arabs too—for instance, in deciding on auspicious days to start new buildings or even new cities. When he set out to construct Baghdad in the middle of the eighth century AD, the Abbasid caliph al-Mansur consulted a Persian astrologer called Nawbakht to find a conjunction of the planets favourable to laying the foundation stone for a new capital.

He then designed Baghdad according to a cosmological plan, with his own celestially-domed palace located, as it were, at the centre of the then known universe. The dome there, as elsewhere in Muslim architecture, represents Homer's “vault of heaven”, the transparent hemisphere that ancient astronomers believed sat over the (flat) earth and through which the stars were viewed.

Even the invention and widespread use of the telescope in the first decade of the 17th century did not radically change man's view of the heavens. Tycho Brahe, a Danish astronomer and a contemporary of both Kepler and Galileo, wrote: “To deny the influence of the stars is to deny the wisdom and providence of God.” And in the early 19th century, Byron could still write:

> For ye are a beauty and a mystery.And create in us such love and reverence from afarThat life, fame, power and fortuneHave named themselves a star.

Down to earth

It is not like that any more. As Peter Lum wrote in “The Stars in Our Heaven”, a fascinating compendium of mythology and fact surrounding man's perception of the stars: “There is no sense of nearness and of the stars' direct participation in human life, such as there once was.” And he was writing in 1932.

Today's astronomers do not even go to observatories, never mind look at the night sky with their naked eyes. They “watch” the sky from remote computers. As this paper's science section commented earlier this year: “The chances of finding an astronomer who knows what a particular star or constellation is called are distressingly low.” Astronomy is all about the theoretical physics of the outer reaches of space. It exists quite outside star-gazing. As for astrology, it is the province of magazines, and widely scorned.

There are certainly countless difficulties with astrology if you take it literally. Its scheme of things was laid down long before (in 1930) man discovered Pluto, a little planet on the outer reaches of the solar system which annoyingly moves well outside the zodiac. And the dates when the sun moves through the constellations do not correspond (as they were meant to) with the dates of the astrological houses. The sun, for example, is in the constellation Aries between April 18th and May 14th, yet the astrological sign Aries covers the period from March 21st to April 20th. It can be argued that Mr Molnar's lunar eclipse in 6 BC occurred while the sun was in Pisces, the constellation of the fishes, not a time of particular significance for the Jews.

Despite these difficulties, however, astrology is invaluable as a tool for helping us to understand how our ancestors perceived the world, and in particular what Matthew was referring to when he wrote about the Star of Bethlehem. So much so that it, rather than astronomy, should be the starting point for any explanation.

Matthew's dilemma

So imagine this: Matthew is trying to persuade the Jews, several decades after the death of Christ, that Christ was indeed the Messiah, the son of God. The first question that any half-intelligent member of his audience would have asked would have been why, if God was in the heavens and controller of the universe, he did not give advance warning of the fact that he was sending his only son to earth. Everything else on earth, from the tendency of women to mingle with vagabonds to the flooding of great rivers, could be foretold in the stars. Surely the greatest event in man's history, which is what you (Matthew) are telling us the birth of Jesus was, could also have been foretold in the stars? And by something far more significant than an everyday conjunction of Venus with Mars?

“Funny you should ask that,” Matthew would have been forced to reply. And he would have had to search around in his imagination for an astrological answer. Which could explain why only his Gospel tells the story (because only he was asked), and why astronomers ever since have found it so difficult to identify the event he was referring to. Of such yielding to temptation, maybe, are eternal mysteries made. Of course, for anyone who takes everything written in the Old and New Testaments literally, this explanation

of the Star of Bethlehem is not acceptable. For the rest of us, though, it has to be a front-runner.

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Dec 20th 2001 | MANA POOLS, PYONGYANG AND PORT HARCOURT
From The Economist print edition

AP

Fed up with crowds on holiday? Go somewhere no one wants to visit

THERE comes a time when Tuscany, Cape Cod and Klosters begin to pall. Too many people you know have been there, and no one is impressed. *The Economist* therefore offers a true Rough Guide for your holiday this year: three destinations where you can avoid other tourists because they have all been scared away.

DESTINATION 1: ZIMBABWE

The bad side

State-sponsored thugs roam the Zimbabwean countryside, beating up dissidents and torching the houses of those suspected of voting for the opposition. As the economy collapses, Robert Mugabe, Zimbabwe's president, seeks to pin the blame on white farmers, several of whom have been murdered, and on a global imperialist conspiracy. All this has been widely televised, and it frightens the safari shorts off potential tourists.

The good side

It is not as dangerous as you think. The violence is concentrated on farms and in areas where by-elections are imminent. Tourists, so long as they don't visit farms or attend political rallies, are unlikely to be affected. Despite Mr Mugabe's best efforts to wreck it, Zimbabwe remains a pleasant place to visit. The people are friendly, the sun smiles on majestic plains, and buffaloes stomp around in huge herds. Victoria Falls is so beautiful that Japanese amateur artists used to arrive by the planeload and spend all week sketching it from every feasible angle.

What to see and do

Your correspondent and his wife went on a canoe safari in the Mana Pools game reserve in northern

Zimbabwe. Paddling down the Zambezi river is a good way to see wildlife. Fluffy-eared waterbuck look up from the bushes as you glide by. Baboons frolic and groom each other in the trees. Elephants come to the water's edge to drink and shower. Since land animals feel out of their element in water, they will not usually attack you while you are floating on it. You can drift within a few yards of a drinking elephant without much risk. This would be unwise on dry land.

Accommodation

A tented camp on the river bank. Every morning, when you set off in your canoes, local helpers pack the tents into the back of a truck and drive ahead. At the end of the day, when you arrive exhausted at a spot several miles downstream, the camp is erected and waiting for you. The shower (no luxury is missing here) is a bucket with a pipe and a sprinkler attached, which works by gravity. The water is warmed on the same fire on which your food is roasted.

Food and drink

Hearty and basic. Flame-charred kudu steaks, chunky warthog stew, rice, potatoes and *sadza*, a chewy, filling maize paste. Bottles of chilled Zambezi, a deliciously crisp local lager, help to blur your view of the sun setting over the river. But Zimbabwe's finest wine, Mukuyu, takes some getting used to.

Travel tips

If a hippo starts swimming aggressively towards you, stand up and wave your paddle in the air

Beware of hippos. They have evil tempers and can bite a crocodile in half. Float into their territory and they will defend it. Despite being vegetarians, they kill more people than any other African animal. To avoid them, rap your canoe with your paddle as you go. The vibrations prompt nearby hippos to rise to the surface to investigate. When you can see them, it is easier to dodge them. If a hippo starts swimming aggressively towards you, stand up and wave your paddle in the air, to make yourself seem larger than you are. If the hippo knocks you into the water, swim for the bank. It will probably mangle your canoe before coming for you. Your correspondent experienced a moment of terror when a hippo leapt off the bank and over the prow of the canoe in front. His guide, unruffled, pointed out the scars where a leopard had jumped on the hippo's back and tried to hold on by its ears. Clearly, the leopard lost.

Never run from a carnivore: it will immediately conclude that you are edible. Stand your ground, and you will probably live. Your correspondent, for example, while walking in the bush, disturbed a pair of copulating lions. The male was visibly and audibly annoyed. But your correspondent's guide stood still and roared back, which persuaded both lions that he was not edible. They slunk off.

DESTINATION 2: NORTH KOREA

The bad side

North Korea has one of the nastiest governments on earth. Kim Jong Il, the first communist dictator ever to inherit his job from his father, swills cognac while his people starve. Anyone who complains is thrown into an icy labour camp.

The good side

If you can get a visa, a trip to North Korea will be educational. Nowhere else will make you so glad the West didn't lose the cold war. Nowhere else can you observe such an odious cult of personality. Those tired of Coke advertisements may well prefer the hundreds of neon signs wishing ten thousand years of life to the Dear Leader. Your phrase book will tell you how to make pleasant conversation about the bumper harvests that have happened every year since he came to power. Even the karaoke machines in hotel bars play songs about how Mr Kim “dispels raging storms”.

What to see and do

You will be accompanied at all times by official guides, wearing Kim Jong Il badges, who will show you the various monuments honouring the Kim dynasty. At the International Friendship Exhibition, a marble palace in the hills, you can marvel at the 104,223 gifts with which foreigners have shown their admiration for the Dear Leader and his father. Stalin sent a bullet-proof limousine. Mao sent a clunky record player. The former president of the Central African Republic sent a flag made of 10,000 butterfly wings.

At the Pyongyang Children's Palace, your correspondent heard a pre-pubescent choir sing: “We must always be prepared for the sake of the Dear Leader.” Inspiring pictures of Mr Kim were projected against the backdrop. The crowd loudly applauded a doctored version of Jacques-Louis David's painting of Napoleon on a rearing horse, in which Kim Jong Il had been substituted for Napoleon. Then a power cut intervened, the lights went out and the orchestra fell silent.

For a hefty fee, even tourists from capitalist South Korea are allowed to visit certain scenic mountains in North Korea. But they are not allowed to talk to any North Koreans, and they are certainly not allowed to try searching for any relatives they have not seen since the Korean war of 1950-53. Contact with wealthy southerners might make northerners resent the regime that keeps them poor.

Accommodation

Buildings in North Korea are designed to look impressive rather than to serve any useful purpose. Hotels therefore tend to be grand but empty. Check into a 45-storey, 500-room edifice with revolving restaurants on the roof, and you may find you are the only guest. Get out of the lift on the wrong floor and you will find yourself in darkness. There is no sense lighting corridors no one uses.

Food and drink

Korean cuisine is fiery and exhilarating. But not in North Korea. Shortages of even the most basic ingredients mean that the hermit kingdom's only novel contribution to world cuisine is a bland version of *kimchi*—a cabbage dish that is supposed to be hot, but in this case isn't.

Travel tips

Don't say anything disrespectful about the Dear Leader or his dad.

Take a thick coat. Korean winters are harsh, and the radiators in your hotel may not work. Your correspondent endured a meal during a power cut at which diners kept their hats and gloves on, and waiters produced candles “to create a romantic atmosphere”. They sang, too, which wasn't bad.

When browsing for souvenirs, there's not much choice. Shop shelves are largely empty. The only things that are easier to get in North Korea than elsewhere are books by Kim Jong Il, who is said to have written definitive guides to more or less everything. Your correspondent was won over by his *Guide for Journalists*, which suggests that “Newspapers should print mainly articles glorifying the Great Leader of the Revolution.”

Books by Kim Jong Il are in good supply

DESTINATION 3: PORT HARCOURT

The bad side

Port Harcourt is hot, humid, malarial, polluted and prone to sporadic bursts of ethnic violence. Although it is the centre of Nigeria's oil industry, the town suffers frequent power cuts. The locals resent the fact that their region provides most of Nigeria's exports but remains horribly poor. This occasionally prompts them to kidnap oil company executives or to vandalise company property. In 1998, in Jesse, to the north-west,

thieves punctured a pipe to steal a tankerload of fuel, and left it gushing. As people came to fill their buckets, someone lit a cigarette. About 1,000 people died in the ensuing fireball.

The good side

Situated as it is in the middle of a rain forest, Port Harcourt lives up to its nickname, “The Garden City”. The streets may be filthy, but the trees and flowers that overshadow them are majestic. Markets such as the one on Creek Road sell everything from peanuts to illicit pistols, and give a taste of Nigerian life in all its noisy, jocular chaos. At night, you can drink and dance in one of many throbbing nightclubs. If you emerge before dawn, you can take in the startling sight of oil flares on distant rigs burning against the night sky. And you can explore the surrounding Niger Delta, an enchanting maze of creeks and mangrove swamps, dotted with quiet fishing villages and teeming with birdlife.

What to see and do

Take a motorboat into the delta. Aim for Brass Island, which has hot, peaceful beaches, a bustling, car-free town centre, and ramshackle restaurants serving fresh periwinkles and ladyfish. If you are in a hurry, you can sometimes hitch a ride on an oil company helicopter, which allows marvellous views over the rain forest. If you have several days to spare, you can visit the Cross River National Park, some 200km to the north-east, which is one of the few remaining places in the world where you can see wild gorillas.

Accommodation

The Hotel Presidential has a huge swimming pool, a gym, a cinema, a good Nigerian restaurant and a bad Chinese one. When your correspondent stayed there, builders were thumping and drilling cacophonously, and there were signs in the rooms warning guests not to steal the fixtures. Walking through the lobby in the evening, your correspondent was accosted by several ladies of the night, the heaviest of whom pursued him into the lift. Halfway up, the power failed and he was trapped in a steel box with a woman whose physical strength was matched only by her persistence. Eventually, the back-up generator kicked in and he escaped, though some of his shirt buttons did not.

Food and drink

Soup is popular, and often so thick it might as well be called stew. Nigerian pepper soup is one of the world's great dishes. It comes in three main varieties—beef, goat or fish—and is usually scooped up in the cupped palm of the right hand. Remember to wash your hands, or you may ruin the flavour. Other tasty concoctions include okra soup with dried shrimp and spinach, and melon-seed soup with crayfish. Street stalls sell a delightful array of snacks: fried yam chips, boiled groundnuts, spicy kebabs and chunks of deep-fried fish dipped in chilli sauce. Bulky staples such as pounded yams or dried manioc flour give you ballast for the hard day's travel ahead.

Home-brewed palm wine has a frothy, sweet taste that is wholly ruined if you buy the safe, pasteurised version sold in posh supermarkets. Local clear beers such as Star and Gulder are scrumptious. Nigerian Guinness, brewed to a recipe that keeps the tropical heat from spoiling it, is much stronger and more bitter than the Irish original. If there is no electricity to chill it, it is almost palatable warm.

Fancy a Nigerian Guiness, or some home-brewed palm wine?

Travel tips

Travel in Nigeria is much easier since the last military dictatorship fell in 1998. There are fewer roadblocks, and the army and police do not hassle and rob motorists with anything like the impunity of old. But criminals without uniforms are still a problem. Since credit cards are rarely accepted, you'll probably feel nervous at the amount of cash you'll need to carry. Buy one of those money belts that looks like an ordinary belt but can be stuffed with rolled-up $100 bills.

Driving is a bit of an ordeal. The roads in Port Harcourt have potholes up to half a mile long. Taxi drivers play an amusing game, similar to the western game of “chicken”, where they drive at incredible speeds on the wrong side of the road to avoid the potholes, and try to intimidate the oncoming traffic into slowing down or pulling over to let them pass. Nervous passengers are advised to wear a blindfold.

Readers are recommended to try one, or more, of these thrilling destinations. And when you return, bruised by hippos, deafened by happy slogans and with your shirt neatly shredded, you are guaranteed an extra bonus: the ability to dine out on horror stories for months.

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Nauru

Paradise well and truly lost

Dec 20th 2001 | NAURU
From The Economist print edition

Greed, phosphate and gross incompetence in a tropical setting: the history of Nauru really is stranger than fiction

IT SITS, a tiny eight-square-mile speck, way out in the vast and lonely reaches of the Pacific, halfway between Hawaii and Australia. In 1798 a passing British captain, the first westerner to see it, dubbed it Pleasant Island. That old name sounds cruelly ironic now. Seen from the air, Nauru resembles an enormous moth-eaten fedora: a ghastly grey mound of rock surrounded by a narrow green brim of vegetation. On the ground, this unlovely impression is confirmed. Strip-mining has turned Nauru into a barren, jagged wasteland. The once-dense tropical vegetation has been cleared. The exposed rock reflects the heat of the equatorial sun and drives away rain.

Unlike many small, remote Pacific islands, Nauru possesses a valuable commodity, phosphate, a sought-after fertiliser ingredient. A high-grade supply was discovered in 1900. For a brief, heady moment in the 1970s, Nauruans were, astonishingly, among the richest people on earth. Now they are poverty-stricken, unhealthy and look set to be clobbered by international trade sanctions. The story of Nauru's descent from prosperity to penury is one of the most cautionary tales of modern development.

Many of Nauru's problems can be traced back to the 19th century. In the 1870s, civil war between the island's 12 tribes reduced the population by 40%, largely thanks to firearms introduced by passing whalers. Then, starting with the Germans in 1888, the island was colonised not by one country but by five, in quick succession. The Germans brought with them lethal European diseases, which dealt another heavy blow to the indigenous population. Their rule was at best neglectful, as was that of the trustees from Britain, Australia and New Zealand who succeeded them at the end of the first world war. The Japanese, who occupied the island for three years during the second world war, were even worse. Their solution to the island's endemic leprosy was to load all the sufferers on to a boat and sink it. By the end of the war, what with air-raids, deportation and massacres, there were fewer than 600 Nauruans left on the island.

The Japanese solution to Nauru's endemic leprosy was to load sufferers on to a boat and sink it

Phosphate-mining, however, continued apace under rulers of any kind. The stuff is not easy to get at. It lies between conical pillars of fossilised coral up to five metres high, and cannot be mined without leaving an uneven, unfarmable, impassable forest of white stone pinnacles. According to the outrageous terms of the monopoly which the colonial powers granted themselves, Nauruan landowners were paid just half a penny for every ton of phosphate extracted. Ominously enough, the first consignment sank in a storm off Australia in 1906.

Undaunted, the colonial rulers introduced foreign labour to speed the plunder of the island. Today, out of a total population of 12,000, some 4,000 are foreigners. Australians serve as managers, doctors and engineers, Chinese run the restaurants and shops, while other Pacific islanders do the dirty work in the mines. That was all very well for much of the 20th century, when the money was flowing in and Nauruans saw no need to work for a living. But nowadays few Nauruans are capable of doing these jobs. Only a third of children go to secondary school.

Phosphate out, refugees in

Foreigners continued to govern Nauru until 1968. By then some two-thirds of the phosphate was already gone—with all the destruction that entailed. In a terrible indictment of its own stewardship, the government of Australia declared Nauru uninhabitable and offered to resettle the population on a deserted island off the coast of Queensland. The Nauruans, determined to win control of their own affairs, opted instead for independence. In a final act of exploitation before bowing out, Australia, New Zealand and Britain forced Nauru to borrow against its future earnings from mining to buy out their shared phosphate company.

Nevertheless, Nauru's problems seemed surmountable. Indeed, the future looked bright. The government planned to set aside a portion of its revenues from mining to rehabilitate the land. Another portion would go towards public services and economic development, and yet another would be invested to provide for future generations. Nauru bustled with optimism and activity. A second, elaborate cantilever was installed to vault the phosphate over the sharp, bone-breaking reef which encircles Nauru and on to boats anchored offshore. A plant to treat the phosphate before export was also built. The islanders, no longer bound by colonial loyalties, began selling to new buyers, such as Japan and South Korea. All this helped push up revenues to $123m by 1981—around $17,500 for each islander.

The government lavished much of this money on ordinary Nauruans, on a scale that has since proved unsustainable. There are no taxes of any kind in Nauru. The government employs 95% of those Nauruans who work. Schooling and medical care are free. If Nauruans need treatment that neither of the two hospitals on the island can provide, the government pays to fly them to Australia instead—though Ausaid, an Australian aid agency, recently warned that Melbourne hospitals would turn away Nauruan patients unless the country's medical bills are settled. Students who want to go to university are also sent to Australia on the government's tab. Electricity, telephones and housing are all subsidised.

Going pear-shaped

With their government salaries and low living costs, Nauruans have enjoyed a way of life that, to other Pacific islanders, might seem enviable. Office hours are flexible. A much-used golf course fills some of the last green spaces on the island. A government station broadcasts three television channels for the islanders' enjoyment, though technicians often seem to lose interest in the programmes halfway through.

Yet the most popular pastime seems to be idly driving the 20-minute circuit around the island, drinking imported Victoria Bitter beer and tossing the empty cans out of the window. More active types lift weights or train frigate birds—although the pelican-like creatures are no longer coached to regurgitate the fish they catch for the islanders. Far easier to stop off at Capelle's, the island's biggest general store, where three times more shelf-space is given over to biscuits than to fruit and vegetables. Greasy fried rice at one of the many hole-in-the-wall Chinese restaurants is another staple.

The most popular pastime seems to be driving round the island, drinking beer and tossing the empty cans out of the window

No wonder Nauru has become something of a case study for research on obesity and diabetes. The government does not keep precise enough statistics to be entirely sure, but Nauru appears to have one of the world's fattest populations, and certainly one of the most diabetic: around 50% of Nauruans suffer from the disease. It stems from their sedentary lifestyle and fatty diet, coupled with genes more suited to warding off starvation. Male life expectancy has fallen to just 55 years, some 20 years less than relatively nearby New Zealand.

Earlier this year, in an effort to set a healthy example, the island's president, Rene Harris, began a weekly walk around the kilometre-long airport runway. But this has failed to attract anything like the crowds that thronged to a recent “Big Is Beautiful” beauty pageant. Injury followed insult when, soon

after his first walk, Mr Harris had to be flown to Australia for emergency medical treatment.

Unsound investments

In the decades following independence, Nauru still had money to burn, even after the government had indulged its citizens' leisurely lifestyle. Surplus revenue was invested in property around the Pacific rim, stakes in different businesses and all manner of financial schemes. Although the government has always been cagey about its finances, outsiders valued its investments at over $1 billion as recently as the early 1990s. Since then, however, the value of those investments has plummeted to something nearer $130m. Even that estimate may be on the high side, as it includes many mortgaged properties and excludes an unknown amount of other borrowing.

Unscrupulous foreigners have played a large part in Nauru's post-independence catastrophe. A series of shysters and con-artists persuaded Nauruans to fritter away their money. One Australian financial adviser persuaded Nauru to shell out $2m for a musical he had written about the life of Leonardo da Vinci, which folded after four weeks on the London stage. Another conned the government into spending $60m on “prime banknotes”, a sort of derivative that turned out to be just as dodgy as it sounds. Much of the money was eventually recovered, but only after lengthy court cases spanning several continents.

Nauruans, too, wasted their fair share. Many investments were made for reasons other than economic merit. The island, whose remoteness in the middle of the Pacific is impossible to exaggerate, makes an improbable air-travel hub. Yet the government backed Air Nauru, which for a while boasted a fleet of five 737s. (It is now down to one.) It did not help that former presidents used to commandeer the airline's planes for holidays, leaving paying customers stranded on the tarmac. Similarly, a cruise ship based in Nauru did more for the people who worked on it than for the country's bottom line. Prime pieces of property have languished, undeveloped, for decades. The government of Fiji recently repossessed a hotel in its capital that Nauru had bought years ago and then left to rot. Another hotel, in the Marshall Islands, has been under construction for more than 20 years. Over A$50m (US$36.6m) was spent on a site in Melbourne that Nauru later sold for less than A$20m.

Former presidents used to commandeer Air Nauru's planes for holidays, leaving paying customers stranded on the tarmac

In 1993, the man brought in to run the Nauru Phosphate Royalties Trust, the government's main investment vehicle, resigned after just two months, complaining that it was on the brink of insolvency through mismanagement. The root cause of the trust's difficulties, though, has been the government's failure to own up to Nauru's reduced circumstances. Phosphate production peaked in the 1980s, and has since fallen by two-thirds. The price of phosphate has also dropped, greatly reducing Nauru's revenues. To cover the shortfall, the government has simply run up enormous debts for years and passed the bill to the trust. In 2000 the deficit reached 18% of GDP, according to the Asian Development Bank. The government found it could not pay civil servants' wages, and had to limit withdrawals from the state-owned Bank of Nauru.

Eventually Nauru's leaders had to do something about their increasingly dire financial situation. In 1998, they persuaded the ADB to lend the country $5m to help overhaul the sieve-like public sector. Since 1999, as part of the deal, the government has sacked roughly a third of its civil servants. But Nauru's government (like most others) would rather do almost anything than cut its own budget. So it has resorted to several desperate money-raising ventures, including that old stand-by of cash-strapped third-world governments, befriending Taiwan. A sun-bleached Taiwanese flag flaps wanly outside the run-down colonial villa that serves as the island's only embassy. In return for this dubious honour, Taiwan has lent Nauru money at bargain rates.

Reuters

Wishing they weren't here

Suing colonial governments for the destruction wrought by mining has also proved a handy source of revenue. In 1989, Nauru brought a case against Australia at the International Court of Justice in The Hague—despite the fact that, since independence, it had been as responsible for its own misfortunes as any foreign government. In 1993, Australia settled out of court for $72m.

Bring money, no questions asked

But Nauru's biggest money-spinner by far is offshore banking. For as little as $25,000, anyone can set up a bank in Nauru, without ever setting foot on the island. Some 400 people have done so; all are registered to the same post-office box at a tiny cabana in Nauru. There is next to no regulation. Unlike other tax havens, which oblige banks to record transactions but keep the details from the prying eyes of foreign officials, banks incorporated in Nauru are not required to keep records at all. Tracing shady transactions or the crooks who conducted them is all but impossible. As if that were not enough, Nauru also sells citizenship—a useful last resort for evading extradition.

Banks incorporated in Nauru are not required to keep records at all

The Russian mafia could not have devised a better system for itself. According to the Russian central bank, some $70 billion vanished into Nauruan accounts in 1998, never to be seen again. Nor is Russia the only concerned party. In 2000, a task-force of the Group of Seven rich nations identified Nauru as one of 15 countries deemed unco-operative in its fight against money-laundering. By October, only Nauru had not managed to pacify the G7. The government had introduced anti-laundering legislation in August, but the taskforce dismissed it as inadequate. It is hard to see how Nauru could manage a more sophisticated system, yet the G7 are still threatening to impose severe financial sanctions. As it is, big western banks will no longer handle transactions involving Nauru. The island's days as a banking haven are numbered.

That knowledge may have driven Nauru to its most extraordinary money-making scheme yet: to hire itself out as a detention camp for would-be immigrants to Australia. The original announcement, in September 2001, that Nauru would take in 283 refugees intercepted off Australia while their claims for asylum were assessed, made sense for both countries. The Australian government, which did not want these people, was able to preserve its policy that only “genuine” refugees could land on its shores, while Nauru earned A$20m in the form of eight months'-worth of free fuel, two new electrical generators, ten scholarships for Nauruan students at Australian universities and a promise to pay off the island's accumulated medical bills. The commotion surrounding the event also brought lots of high-spending diplomats, journalists, immigration officials and contractors to the island. Delighted islanders greeted the refugees with songs and flowers.

The refugees, however, were less than delighted to end up on a barren rock in the middle of the Pacific, several thousand miles from their intended destination. Many refused to leave the Australian naval vessel that had brought them to Nauru. Scuffles broke out when soldiers tried to frogmarch them ashore. Some islanders worried that their more disgruntled guests might raise a ruckus to draw attention to their plight. Their misgivings were redoubled when their government accepted a second boatload of 237 refugees, and then a third of 262. At least one former president has warned against accepting any more. In any event, Nauru faces competition as a processing centre from other poor Pacific nations beholden to Australia, such as Papua New Guinea and Kiribati, Nauru's closest neighbour, 400 miles away.

Meanwhile, evidence of Nauru's decay grows more and more alarming. The government has been forced to ration electricity and water between visits of the ship that brings fuel for the island's desalination and power plant. The petrol supply regularly runs out. Several times this year, the Australian aviation authority, which regulates Air Nauru, grounded its one and only plane for fear of the frequent power and communications blackouts at Nauru's airport. A further humiliation came when the International Weightlifting Federation, the governing body of the island's favourite sport, cancelled plans to hold the world championships in Nauru earlier this year, moving them first to Guam and then to Turkey instead.

The citizens of Nauru, to their credit, have not taken all this lying down. A disgruntled populace has forced no fewer than ten changes of government since 1995. Rare visits from international dignitaries have been disrupted by placard-wielding protesters, demanding to know where their money has gone. It is a melancholy sign of the islanders' desperation that the idea of simply buying another island and starting afresh is once again under discussion. But who in his right mind would let the Nauruans get their hands on another island?

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The Filipina sisterhood

An anthropology of happiness

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From The Economist print edition

Out of misery, some extraordinary lessons

ONCE a week, on Sundays, Hong Kong becomes a different city. Thousands of Filipina women throng into the central business district, around Statue Square, to picnic, dance, sing, gossip and laugh. They snuggle in the shade under the HSBC building, a Hong Kong landmark, and spill out into the parks and streets. They hug. They chatter. They smile. Humanity could stage no greater display of happiness.

This stands in stark contrast to the other six days of the week. Then it is the Chinese, famously cranky and often rude, and expatriate businessmen, permanently stressed, who control the city centre. On these days, the Filipinas are mostly holed up in the 154,000 households across the territory where they work as “domestic helpers”, or *amahs* in Cantonese. There they suffer not only the loneliness of separation from their own families, but often virtual slavery under their Chinese or expatriate masters. Hence a mystery: those who should be Hong Kong's most miserable are, by all appearances, its happiest. How?

The Philippine government estimates that about 10% of the country's 75m people work overseas in order to support their families. Last year, this diaspora remitted $6 billion, making overseas Filipino workers, or OFWs, one of the biggest sources of foreign exchange. Hong Kong is the epicentre of this diaspora. Although America, Japan and Saudi Arabia are bigger destinations of OFWs by numbers, Hong Kong is the city where they are most concentrated and visible. Filipina *amahs* make up over 2% of its total and 40% of its non-Chinese population. They play an integral part in almost every middle-class household. And, once a week, they take over the heart of their host society.

It was not always thus. Two generations ago, the Philippines was the second-richest country in East Asia, after Japan, while Hong Kong was teeming with destitute refugees from mainland China. Among upper-class families in the Philippines, it was common in those days to employ maids from Hong Kong. But over the past two decades Hong Kong has grown rich as one of Asia's “tigers”, while the Philippines has stayed poor. Hong Kong is the closest rich economy to the Philippines, and the easiest place to get “domestic” visas. It has the most elaborate network of employment agencies for *amahs* in the world.

A bed in a cupboard

Although the Filipinas in Hong Kong come from poor families, over half have college degrees. Most speak fluent English and reasonable Cantonese, besides Tagalog and their local Philippine dialect. About half are

in Hong Kong because they are mothers earning money to send their children to school back home. The other half tend to be eldest sisters working to feed younger siblings. All are their families' primary breadwinners.

Their treatment varies. By law, employers must give their *amahs* a “private space” to live in, but Hong Kong's flats tend to be tiny, and the Asian Migrant Centre, an NGO, estimates that nearly half of *amahs* do not have their own room. Some *amahs* sleep in closets, on the bathroom floor, and under the dining table. One petite *amah* sleeps in a kitchen cupboard. At night she takes out the plates, places them on the washer, and climbs in; in the morning, she replaces the plates. When *amahs* are mistreated, as many are, they almost never seek redress. Among those who did so last year, one had her hands burned with a hot iron by her Chinese employer, and one was beaten for not cleaning the oven properly.

One petite *amah* sleeps in a kitchen cupboard. At night, she takes out the plates and climbs in; in the morning, she replaces the plates

The *amahs*' keenest pain, however, is separation from loved ones. Most *amahs* leave their children and husbands behind for years, or for good, in order to provide for them. Meanwhile, those families often break apart. It is hard, for instance, to find married *amahs* whose husbands at home have not taken a mistress, or even fathered other children. Some *amahs* show their dislocation by lying or stealing from their employers, but most seem incapable of bitterness. Instead, they pour out love on the children they look after. Often it is they who dote, who listen, who check homework. And they rarely stop to compare or envy.

Under such circumstances, the obstinate cheerfulness of the Filipinas can be baffling. But does it equate to “happiness”, as most people would understand it? “That's not a mistake. They really are,” argues Felipe de Leon, a professor of Filipinology at Manila's University of the Philippines. In every survey ever conducted, whether the comparison is with western or other Asian cultures, Filipinos consider themselves by far the happiest. In Asia, they are usually followed by their Malay cousins in Malaysia, while the Japanese and Hong Kong Chinese are the most miserable. Anecdotal evidence confirms these findings.

Happiness is kapwa

Explaining the phenomenon is more difficult. The usual hypothesis puts it down to the unique ethnic and historical cocktail that is Philippine culture—Malay roots (warm, sensual, mystical) mixed with the Catholicism and fiesta spirit of the former Spanish colonisers, to which is added a dash of western flavour from the islands' days as an American colony. Mr de Leon, after a decade of researching, has concluded that Filipino culture is the most inclusive and open of all those he has studied. It is the opposite of the individualistic culture of the West, with its emphasis on privacy and personal fulfilment. It is also the opposite of certain collectivistic cultures, as one finds them in Confucian societies, that value hierarchy and “face”.

By contrast, Filipino culture is based on the notion of *kapwa*, a Tagalog word that roughly translates into “shared being”. In essence, it means that most Filipinos, deep down, do not believe that their own existence is separable from that of the people around them. Everything, from pain to a snack or a joke, is there to be shared. Guests in Filipino homes, for instance, are usually expected to stay in the hosts' own nuptial bed, while the displaced couple sleeps on the floor. Small-talk tends to get so intimate so quickly that many westerners recoil. “The strongest social urge of the Filipino is to connect, to become one with people,” says Mr de Leon. As a result, he believes, there is much less loneliness among them.

It is a tall thesis, so *The Economist* set out to corroborate it in and around Statue Square on Sundays. At that time the square turns, in effect, into a map of the Philippine archipelago. The picnickers nearest to the statue itself, for instance, speak mostly Ilocano, a dialect from northern Luzon. In the shade under the Number 13 bus stop (the road is off-limits to vehicles on Sundays) one hears more Ilonggo, spoken on Panay island. Closer to City Hall, the most common dialect is Cebuano, from Cebu. Hong Kong's Filipinas, in other words, replicate their village communities, and these surrogate families form a first circle of shared being. Indeed, some of the new arrivals in Hong Kong already have aunts, nieces, former students, teachers, or neighbours who are there, and gossip

from home spreads like wildfire.

What is most striking about Statue Square, however, is that the sharing is in no way confined to any dialect group. Filipinas who are total strangers move from one group to another—always welcomed, never rejected, never awkward. Indeed, even Indonesian maids (after Filipinas, the largest group of *amahs*), and Chinese or foreign passers-by who linger for even a moment are likely to be invited to share the snacks.

The service in Tagalog at St Joseph's Church is stand-up comedy, rock concert and group therapy

The same sense of light-hearted intimacy extends to religion. Father Lim, for instance, is a Filipino priest in Hong Kong. Judging by the way his mobile phone rings almost constantly with *amahs* who want to talk about their straying husbands at home, he is also every *amah*'s best friend. He is just as informal during his Sunday service in Tagalog at St Joseph's Church on Garden Road. This event is, by turns, stand-up comedy, rock concert and group therapy. And it is packed. For most of the hour, Father Lim squeezes through his flock with a microphone. “Are you happy?” he asks the congregation. A hand snatches the mike from him. “Yes, because I love God.” Amid wild applause, the mike finds its way to another *amah*. “I'm so happy because I got my HK$3,670 this month [$470, the amahs' statutory wage]. But my employer was expecting a million and didn't get it. Now he's miserable.” The others hoot with laughter.

The Filipinas, says Father Lim, have only one day a week of freedom (less, actually, as most employers impose curfews around dusk), so they “maximise it by liberating the Filipino spirit”. That spirit includes communing with God. Some 97% of Filipinos believe in God, and 65%, according to a survey, feel “extremely close” to him. This is more than double the percentage of the two runners-up in the survey, America and Israel. This intimate approach to faith, thinks Father Lim, is one reason why there is virtually no drug abuse, suicide or depression among the *amahs*—problems that are growing among the Chinese.

The lifeline to home

There is, however, an even more concrete expression of *kapwa*. Quite simply, it is the reason why the Filipinas are where they are in the first place: to provide for loved ones at home. Most spend very little of their monthly HK$3,670 on themselves. Instead, they take it to WorldWide House, a shopping mall and office complex near Statue Square. On Sundays the mall becomes a Philippine market, packed with *amahs* buying T-shirts, toys and other articles for their siblings and children, and remitting their wages. More than their wages, in fact: many *amahs* borrow to send home more, often with ruinous financial consequences.

Father Lim tells a story. An eminent Filipino died while abroad, and it was decided that local compatriots should bid the coffin adieu before its journey home. So *amahs* showed up to file past it. When the coffin arrived in the Philippines and was re-opened, the corpse was covered from head to toe with padded bras, platform shoes, Nike trainers, and the like, all neatly tagged with the correct addresses.

Bayani means heroine, and this is how many _amahs_ see themselves

It is their role as a lifeline for the folks at home that has earned the OFWs their Tagalog nickname, *bayani*. By itself, *bayani* means heroine, and this is how many *amahs* see themselves. Another form of the word, *bayanihan*, used to describe the traditional way of moving house in the Philippines. All the villagers would get together, pick up the hut and carry it to its new site. *Bayanihan* was a heroic, communal—in other words, shared—effort.

It is no coincidence, therefore, that Bayanihan House is the name the *amahs* have given to a building in Hong Kong that a trust has made available to them for birthday parties, hairstyling classes, beauty pageants and the like. One recent Sunday, during a pageant, one of the contestants for beauty queen was asked how she overcame homesickness, and why she thought the people back home considered her a hero. She looked down into her audience of *amahs*. “We're heroes because we sacrifice for the ones we love. And homesickness is just a part of it. But we deal with it because we're together.” The room erupted with applause and agreement.

“Nowadays, *bayanihan* really means togetherness,” says Mr de Leon, and “togetherness is happiness”. It might sound too obvious, almost banal, to point out—had not so many people across the world forgotten it.

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The future of the company

A matter of choice

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That hardy workhorse of capitalism—the joint-stock company—looks surprisingly durable. But pressure on it is increasing

BROWSE in the business section of any decent bookshop and you are confronted with an extraordinary array of possible futures for the company. Will it be digital or doughnut shaped? Virtual or elephantine? Networked or focused? Lean or fat? Mean or soulful? The future seems to hold almost every possible fate for the corporation except one: being bland and boring.

Much of this is hype, of course: bland and boring does not sell books. But it does point to an important fact: that the organisation which so many of us take for granted is in a state of rapid evolution. To understand just how rapid take a look at John Kenneth Galbraith's “The New Industrial State”, an intriguing portrait of the state of corporate America back in 1967. Mr Galbraith argued that America was run by a quasi-benevolent oligopoly. A handful of big companies—the big three car companies, the big five steel companies, etc—planned the economy in the name of stability.

They were hierarchical and bureaucratic organisations that were in the business of making long runs of standardised products. They introduced “new and improved” varieties with predictable regularity; they provided their workers with life-time employment; and they enjoyed fairly good relations with the giant trade unions. (About 40% of the manufacturing workforce was then unionised.) What's more, they were all American.

America's giant companies have been either eviscerated or transformed by global competition. More changes lie ahead

That world is now dead. America's giant companies have been either eviscerated or transformed by global competition. Most have shifted their production systems from high-volume to high-value, from standardised to customised. And they have flattened their management hierarchies to make themselves nimbler and fitter. Few people these days expect to spend their lives moving up the ladder of a single organisation.

It is reasonable to expect that further dramatic changes lie ahead. But where exactly will they take us? Where is the modern company heading?

Bigger and bolder

There are three standard answers to this question, the first two of which are almost diametrically opposed to each other. The first—particularly popular in anti-globalisation circles—holds that a handful of giant companies are engaged in a “silent takeover” of the world, in the words of Noreena Hertz, a Cambridge University academic. The past couple of decades have seen an unprecedented spurt of mergers. The survivors, it is maintained, are the real lords of the universe today: far more powerful than

mere nation states.

Like Mr Galbraith's oligarchs, these corporate barons plan the world economy for their own sinister purposes. But they have none of the offsetting advantages of providing life-time security and a stable environment. The trouble with this view is, er, the facts. As Martin Wolf of the *Financial Times* has pointed out, Ms Hertz's claim that “51 of the 100 biggest economies of the world are now corporations” abuses statistics. She measures companies by sales, but national economies by GDP (which is a measure of value added, more akin to corporate profits).

Rather than increasing their hold over the universe, big companies have been losing ground. In 1970, both the television and car markets in America were controlled by triumvirates, each with a combined share of around 90%. Today, the big three are hanging on to around half of each market.

Futuristic industries offer no more comfort. Two American business-school professors, Fariborz Ghadar and Pankaj Ghemawat, point out that in computer hardware, computer software and long-distance telephony, the top five companies' shares of worldwide sales declined by 15 to 30 percentage points each between 1988 and 1998. It is hard to think of an industry that has become more competitive in recent years—let alone one that is likely to do so in future.

The second school of thought argues almost the opposite of the first: it says that big companies are a thing of the past. For a glimpse of the future, its proponents recommend the Monorail Corporation, which sells computers. Monorail owns no factories, warehouses or any other tangible asset. It operates from a single floor that it leases in an office building in Atlanta. Its computers are designed by freelance workers. To place orders, customers call a free-phone number connected to Federal Express's logistics service, which passes the orders on to a contract manufacturer that assembles them from various parts. FedEx then ships the computer to the customer and sends the invoice to the SunTrust Bank, Monorail's agent. The company is not much of anything except a good idea, a handful of people in Atlanta, and a bunch of contracts.

This school has the benefit of having economic theory on its side. In 1937, Ronald Coase, a Nobel-prize-winning economist, asked a fundamental question: “Why do firms exist?” His answer: companies make sense when the “transaction costs” associated with buying things on the market exceed the fixed costs of establishing and maintaining a bureaucracy. Modern technology is shifting the balance of advantage away from firms and towards markets. Their current goal is to focus on the few things at which they undoubtedly excel and to hand over everything else to equally focused specialists.

Yet the idea that the firm will retreat to the periphery of the economy still looks far fetched. As Gary Hamel and C.K. Prahalad, two management academics, have pointed out, firms possess certain “core competences”, usually cultural ones, that cannot easily be purchased on the market. Even leaving culture aside, there are still market failures that persuade firms to try to do things internally rather than externally. If a firm thinks a contractor possesses knowledge that is vital to its own survival, it has every incentive to take over that supplier.

Monorail is not much of anything except a good idea, a handful of people in Atlanta, and a bunch of contracts

The network is everything

The third forecast is an offshoot of the second: that the discrete company is no longer the basic building block of the modern economy. This school argues that it is being replaced by the “network”.

In some parts of the world, such webs have long been the norm. The economies of Japan and South Korea are dominated by *keiretsu* and *chaebol*—large groupings of inter-related companies. In other parts of Asia, the overseas Chinese operate through a maze of interlinked family companies. Nor is it just an eastern fashion. Italy's most important commercial empires knit together strings of companies through cross-shareholdings.

Now companies everywhere are dissolving the boundaries with their suppliers, customers and even rivals. A study in the late 1990s by Booz-Allen & Hamilton, a consultancy, reckoned that alliances in the United States had grown by 25% a year over the preceding decade, and by more in Europe and Asia. In his new book, “The Agenda”, Michael Hammer, the co-inventor of the re-engineering fad, stresses the importance of firms “losing their identity” in an extended enterprise, and “getting past the idea” of being a self-contained unit.

Networks are seen not just as an answer to external competition, but also as a way of giving more freedom to today's prized “knowledge workers”. The inventor of that term, Peter Drucker, who laid out his own forecast for the firm's future in this newspaper (November 3rd), argues that the way forward lies in networks, such as the purchasing co-operative that has been set up by Detroit's big three car makers.

In Silicon Valley, hierarchical organisations are dissolving into fluid “networks of treaties”. Free-floating groups of entrepreneurs form such a network to market an idea. They then sell it to the highest bidder and move on to produce another idea and to create another firm, with the money being supplied all the while by the valley's venture capitalists. Hence the talk of a Kleiner Perkins *keiretsu*, based around the eponymous venture-capital firm.

Despite all this, however, the idea that the basic agent in the modern economy is ceasing to be the firm and becoming the network is unconvincing. One reason is that the networking concept has bundled together too many contradictory ideas. For instance, some networks take a step back from the market (a *keiretsu* protects its member companies behind the walls of a group), while others break down corporate barriers precisely in order to become more market-driven (the funkier Silicon Valley lot).

The older sort of network hardly looks futuristic. America has dismantled most of its conglomerates, and now the same process is beginning to happen in Japan and South Korea as managers there desperately try to focus their unwieldy organisations. Even in the more recent alliances, it looks as if the firms are governing the networks rather than the other way round. In Silicon Valley, the firm remains the basis of economic activity.

Firms possess both a legal personality and a system of internal accountability; networks have no clear way of deciding either ownership or accountability. This makes it difficult for them to make joint decisions or to divide up profits (witness the desperate attempts of Airbus to become a stand-alone company). Where a network works, it is usually because a firm is driving it. Without that, a tendency to agonise over the most mundane decisions takes over.

Choice, glorious choice

None of the three main proposals for the future of the company looks definitive. Together, they leave behind a set of contradictory impressions: the fashion for “networking” has coincided with a greater emphasis on focus; a period of mergers and acquisitions has coincided with an efflorescence of small companies; and the fashion for shareholder capitalism has coincided with a flattening of hierarchies. So does any pattern emerge?

Another way to look at the future of the company is to focus less on structure than on the environment that will determine it. That environment is dominated by one thing: choice. Technology and globalisation open up ever more opportunities for individuals and firms to collect information and conduct economic activity outside traditional structures.

As Robert Reich, a secretary of labour under Bill Clinton, points out, “we are entering the Age of the Terrific Deal, where choices are almost limitless and it is easy to switch to something better.” While the age of mass production lowered the costs of products at the expense of limiting choices—Henry Ford famously said that you could have a car in any colour, as long as it was black—modern “flexible” production systems usually both lower costs and increase choice. Consumers have more choice over where they spend their money. Producers have more choice over which suppliers to use. Potential shareholders have more choice over where to put their money.

It is hard to argue that this environment invariably favours one sort of structure over all others. The world's most successful company over the past five years, according to a recent Stern Stewart study of “wealth added”, has been an unwieldy conglomerate spread across umpteen unconnected businesses, many of them (for example, light bulbs) distinctly unfashionable. General Electric (GE) has thrived because it has been well run.

But even if the ever more competitive environment does not predetermine the firm's future structure, it will, surely, make some characteristics more valuable. Four, in particular, stand out:

•**Leanness**. This is not the same as size. GE is huge, but it is also lean. Layers within firms will continue to flatten out as improvements in communication technologies increase the number of employees that supervisors can manage effectively. The chances are that more tasks will be assigned to ad hoc teams

with substantial discretion over what they do and how. Rather than sending orders down a hierarchy, managing in new organisations will be about weaving such networks together.

•**Flexibility**. Mr Drucker's classic 1946 portrait of General Motors, “Concept of the Corporation”, barely mentions shareholders at all: the managers ran the company as if it were their own. Now no chairman of a big American company can guarantee life-time employment even to himself. Managers need to have the freedom to expand and contract their workforce to deal with uncertain times.

•**Reputation**. With “hard” competitive advantages becoming ever scarcer, companies will look more to brands and images that can cut through the clutter of all those choices. The real economic value of a corporation increasingly comes not from the assets that it owns, or the employees that it supervises, but from the domain of trust that it has established with its customers. One of the central challenges for future firms will be to ensure that they maintain the quality of their name while at the same time sub-contracting much of their production to companies elsewhere.

•**Talent**. The human side of management is set to become more important rather than less. In the first half of this century, managers tried to take the human element out of business by turning people into interchangeable machines. Nowadays, what sets companies apart is their ability to create and innovate. McKinsey, a consultancy, argues that the key battle of this century is the war for talent: the war to hire and retain the best people. Mr Drucker's knowledge workers are a demanding lot. They are less and less likely to want to work full-time for one company, seeing no reason to pledge their loyalty to an organisation that can no longer reciprocate the favour.

One way to look at the future of the firm is as a battle between different groups of stakeholders. The virtues listed above favour different ones. Flexibility and leanness mostly benefit the firm's owners. An obsession with talent gives more power to workers. A good reputation means that companies have to look after their local community, the environment and so on. Only customers, it seems, gain from all four characteristics.

In general, the joint-stock company is skewed towards its owners. The whole point of a corporation is to make investors feel safe: they cannot be sued if it goes bankrupt; they can sell their shares if they want to; and they never lose more than they invest.

The last century saw all sorts of challenges to shareholder capitalism: from state-owned capitalism; from mixed stakeholder capitalism (notably in Germany); from the managerial capitalism of 1950s America; from the *keiretsu* and *chaebol*; even, to some extent, from the virtual economy of the Internet. But it has survived them all. Even countries that once looked on the idea of equity capitalism with suspicion are turning back to it. Germany has introduced more IPOs in the past five years than in the previous 50. There are now more German shareholders than there are trade unionists.

From this perspective, the future of the company would seem to be assured. Any idea of the joint-stock company disappearing looks wildly premature. In many places, it is only just beginning to thrive. In most commercial endeavours, it is still the best and easiest structure for individuals to pool capital, to refine skills, and to pass them on. And it has proven enormously adaptable: look at the gap between General Motors and Monorail.

Yet this very adaptability points to another truth: that the corporation will surely become ever less corporate. Monorail is not a firm that most 1950s organisation men would recognise. Technology is shifting the advantage gradually away from organisations towards individuals and markets. The erosion of Coasian transaction costs will make it ever easier for small companies—or just collections of entrepreneurs—to challenge the dominance of big companies; and ever more tempting for entrepreneurs to enter into loose relationships with other entrepreneurs rather than to form long-lasting corporations. In order to deal with these challenges, corporations will have to break themselves down into small entrepreneurial units.

The unpredictable Leviathan

There remains one great unknown about the future of the company: the role of the state. Whatever the anti-globalisation protesters might say, the state still has enormous influence over the corporate sector, although most advanced nations have become a bit schizophrenic about it. On the one hand, governments are ceding ever more of their own territory to profit-making institutions. Recently, for instance, Pennsylvania decided to hand over some control of the worst schools in the Philadelphia school

system, the sixth biggest in the country, to a private-sector firm, Edison Schools.

Yet even while they yield ground to the firm, governments are increasingly using regulation to force companies to pursue what used to be their own social ends. What began as a mixture of accident prevention (workplace safety rules) and administrative convenience (organising pensions through companies) has become much more aggressive. Firms are now being regulated by governments in ways intended to clean up the environment and to balance social inequality. Multinationals are now seen as tools, via fair-trade regulations, to sort out the evils of third-world poverty.

There remains one great unknown about the future of the company: the role of the state, which still has enormous influence

The costs are huge. The Office of Management and Budget calculates that the cost of meeting social regulations in the United States could be as high as $289 billion. Thomas Hopkins, of the Rochester Institute of Technology, reckons the cost is almost three times that amount. And the numbers are likely to get larger as politicians discover that it is far cheaper (both in financial and electoral terms) to get companies to do their work for them.

From the viewpoint of society as a whole, this thicket of rules may be efficient. From the company's perspective, however, it represents an increasing threat—just as the corporation is losing some of its advantages over lone-wolf entrepreneurs. If the company yields ground in the future, it may have as much to do with politics as economics.

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Paper money

Crisp and even

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January 1st sees the biggest-ever introduction of new banknotes on a single day. It may go smoothly—but the history of paper money is littered with warnings

THE scale is mind-boggling. Over the past few months, some 14 billion brand-new notes, ranging in value from *euro*500 ($440) down to *euro*5, have been printed by the 12 countries that have adopted Europe's single currency, the euro. As many as 10 billion of these notes will be introduced on January 1st 2002 (a public holiday throughout Europe), accompanied by the simultaneous release of 50 billion new coins. It adds up to what the European Central Bank claims is “the biggest logistical exercise in peacetime”.

Little wonder that plenty of gloomsters foresee chaos. There are predictions of massive queues at railway stations and post offices; of elderly (and not-so-elderly) shoppers befuddled by the new currency—not least by conversion factors that perforce run to six decimal places; of confusion because old notes in national currencies will continue to circulate for periods varying between four and eight weeks, depending on the country; and of sharp retailers taking advantage of the situation to raise prices and short-change customers. Worse, Europe's criminals will be hard at work exploiting what may be the greatest opportunity in history to pass forged banknotes.

In all likelihood, most of the doomsday talk will turn out to be as overblown as was the millennium bug. But the history of paper money is decidedly chequered, and few of today's big issuers of the stuff have solved all the problems that come with it.

Paper dreams

Gertrude Stein once said that “the thing that differentiates animals and man is money”. The search for a means of exchange is almost as old as mankind. Coinage was invented by Croesus, king of Lydia, who became so fond of it that he soon also pioneered its debasement. Among commodities tried have been chocolate (the Aztecs), cowrie shells (Pacific islanders), butter (Norsemen) and salt (from which the word salary is derived). In Europe after the second world war cigarettes were used, and in Italy it was common as late as the 1970s to use sweets as small change.

Paper money has an extra hurdle to jump, compared with commodities, coins or even sweets: the credibility of something with no inherent value. Even so, the notion of using paper as money is almost as old as paper itself. The first people to do it were the Chinese, who printed the earliest banknotes over 1,000

Unlike coins or even sweets, paper money

years ago. Rather like Croesus before them, they soon grew so fond of their invention that they also pioneered excessive monetary growth, triggering inflation. As long ago as the 11th century, the issuance of banknotes led to a depreciation that, one historian of China, L. C. Goodrich, has argued, rivalled conditions in Germany and Russia after the first world war.

cannot claim credibility based on inherent value

The most famous Chinese issuer of paper money was Kublai Khan, the Mongol who ruled the Chinese empire in the 13th century. Kublai Khan decreed that his paper money must be accepted by traders on pain of death. As further encouragement, he confiscated all gold and silver, even if it was brought in by foreign traders. Marco Polo was impressed by the efficiency of the Chinese system. Yet for all the threats, paper money did not succeed everywhere. In Persia, its forcible introduction in 1294 led to a total collapse of trade. By the 15th century even China had more or less given up paper money.

In Europe, the honour of being the first issuer of paper money belongs to Sweden, where in 1661 Johan Palmstruch's Stockholm Banco introduced the first banknotes. Yet after a splendid start, the bank overextended itself and had to call in government aid; Palmstruch himself was sentenced to death (later commuted to life imprisonment) for mismanagement. Despite this example, other European countries soon followed the Swedish lead. One reason for establishing the Bank of England in 1694 was to print paper money, often in the form of “running cash notes”, the balance of which could be kept in an account. The Bank is now the longest continuous issuer of banknotes in the world.

As elsewhere, however, many experiments ended in disaster. The best-known was the brainchild of John Law, a Scot who in 1716 persuaded the Duke of Orleans, then regent for Louis XV, to let him start a bank and issue notes as a way of boosting the French economy. The Banque Royale, as it officially became in 1718, was a roaring success at first, especially when it became linked to Law's Mississippi company. But when it was noticed that Law had issued twice as much currency as France's total supply of gold and silver, confidence and the bank both collapsed, and Law headed into exile.

French suspicion of paper money persisted up to and beyond its revival in the 1790s. The notorious *assignats* issued by the revolutionary government were promptly depreciated, just as Law's notes had been. Well into the 20th century, and even today, France has maintained a stronger attachment to gold than have most other rich countries.

The real masters of paper money, however, were on the other side of the Atlantic. As John Kenneth Galbraith has put it, “if the history of commercial banking belongs to the Italians and of central banking to the British, that of paper money issued by a government belongs indubitably to the Americans.” And the father of American paper currency is indubitably Benjamin Franklin, the man who features on today's $100 bill. He was a printer who, like Law, was a fervent advocate of the benefits of paper currency.

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Promises, promises

As usual, though, things went too far. By the mid-18th century, several colonies had issued so much paper currency (Rhode Island being the champion depreciator) that London was forced to intervene on behalf of long-suffering creditors. All issues of banknotes were banned in 1764—one of the tyrannical acts that helped trigger moves to independence. To pay for the war of independence itself, the colonies issued a whole lot more paper, which rapidly became devalued.

As in France, this unhappy experience led to a suspicion of paper money that lasted for generations. The constitution adopted in 1789 banned the issuance of paper money by any state. In the 1830s, Andrew

Jackson vetoed the establishment of a central bank, which is why America did without one until 1913. During the civil war, both sides yet again resorted to paper money, and once again inflation ensued. The confederacy's money, in particular, suffered almost as spectacular a depreciation as did the German mark in 1923. Even the populist movement of the 1890s could trace some of its roots to the paper-money disasters of previous generations.

The forger's art

Most of this gloomy history reflects the failure of governments to follow Ricardo's simple 1817 dictum in "Principles of Political Economy and Taxation": "It is not necessary that paper should be payable in specie to secure its value, it is only necessary that its quantity should be regulated." We need no longer worry that the ECB or the national central banks in Europe will overissue their paper currency. But there is a second danger likely to affect the euro, and to do so almost immediately: forgery.

Forgery is as old as paper money. Its appeal is obvious enough: because paper is intrinsically worth nothing, passing it off as currency can be hugely rewarding. Issuers have always been plagued by forgers. In the early 19th century, the Bank of England devoted huge resources to detecting forgeries, advising the public how to avoid them and catching their perpetrators, most of whom were hanged.

The greatest forger of all time, Leon Warnerke, was never caught, had countless identities and even managed to fake his own death

Later in the century, several central banks suffered from the attentions of perhaps the greatest forger of all time, Leon Warnerke. Warnerke, who may have been either Russian or Moravian by birth, was to outward appearances a respectable photographer and businessman, living in a comfortable villa in south-east London. But in fact he was the kingpin in a loose group of anarchists and ex-communards; and he was a highly successful forger of various east European banknotes, especially Russian roubles. He was never caught and had countless identities—and there is even evidence that he managed to fake his own death in 1900.

The hardest part of forgery is often not the reproduction of the notes, but their distribution. It is because distribution requires good organisation that the most effective forgeries have often been undertaken by governments themselves. In the war against revolutionary France, for instance, the British made hay by forging *assignats*, contributing to the inflation that followed their introduction. Forging the other side's currency has become a standard (and often devastating) war tactic. It was used against Saddam Hussein in 1990-91; it has also been used this year against the Taliban in Afghanistan.

The most brilliant case of forgery in wartime was that of the Nazis against Britain in the second world war. The Germans used skilled counterfeiters in prison, notably in the Sachsenhausen concentration camp. They also manufactured superb paper (the paper that goes into a banknote can be the hardest thing to forge: Warnerke was a master paper maker). When the notes started to appear, the Bank of England was deeply worried by their quality. It is said that the only distinction between the best German forgeries and the real thing was that the former were perfect: genuine notes all had blemishes.

Designs for living

The European Central Bank is well aware of this history. Indeed the threat from forgers is one reason why it kept the detailed design of its new notes under wraps for so long. It also explains why it was anxious not to allow any notes to reach the public before January 1st—and why police forces in various countries have been so energetic in pursuing the few cases there have been of robbery of the notes. And it is part of the response to those who have complained about the the dull design of the notes: for all banknote issuers, retorts the ECB, security comes ahead of aesthetics.

For the euro, there are four layers of security. First are a few simple features—such as watermarks and security threads—that are relatively easy for the general public to spot. A further seven or eight more elusive points will be drawn to the attention of Europe's 5m or so professional cash handlers. Third come features to help automated machines to tell real notes from false ones. And lastly there are some aspects of the design that only experts from central banks will be able to detect. All except this last category will be publicised after January 1st.

Yet there is a flaw inherent to all such security measures. As Peter Bower, a forensic paper analyst, puts it, “all security features are designed by experts—and the public doesn't know about them.” This will remain true despite the most lavish of publicity campaigns. Forged notes are often passed in ill-lit places such as bars and pubs. Mr Bower estimates that perhaps 3% of banknotes in west European countries may be forged, and that the proportion is rising. For the American dollar, which circulates widely outside the United States, his guess is more dramatic: as much as 30% of the notes circulating in Russia, Eastern Europe, Africa and elsewhere may be forged.

In one sense, forgery is getting easier, not harder. Personal computers and colour-printing drum scanners have made the copying of anything much easier than it was. Yet there are still ways of staying ahead in the cat-and-mouse game of issuer and forger. One is through tight control of the paper. The three best-known manufacturers are Crane's, in Massachusetts, Portals in Hampshire, England, and Chamalières, in the Auvergne. De la Rue, the owner of Portals, is the biggest commercial banknote printer in the world, with clients in 150 countries. Portals has supplied the Bank of England since 1742, and it says it has never had any paper stolen, although others claim that it did happen once in the 19th century.

Another way of foiling the forgers is through the choice of design and colour. For years green was the hardest colour to copy, which is why the Americans used it—hence the term “greenback”. Some intricacies of design can be hard to copy too—although the most handsome notes are not always the hardest to reproduce. Plastic notes, as used in Australia and now in Brazil, are another way forward, but experts say they too can be forged, and many users dislike them.

A third way of defeating the forgers is to change your notes frequently. And, although few central banks like to admit that forgery is a problem at all, it is striking that many have speeded up the rate at which they introduce new notes. Typically, banknotes used to remain in circulation for 15-20 years, and designs might change even less often. Now notes usually stay in circulation for less than ten years; and design changes are made more often still. New denominations are less common (and not always successful: as many as 600m of the 770m ¥2,000 notes introduced by the Bank of Japan in 2000 are back in its vaults). But most countries have gradually replaced their smallest denomination notes with coins.

There is a glaring exception to this, however: the United States. Banknote experts despair of America's longstanding refusal to modernise its notes, or even to change them much. The Americans retort that, unlike most, they have never in history stopped honouring any of their notes—but then neither has the Bank of England. Besides being dull and relatively easy to forge, different denominations of dollars are hard to tell apart. Yet even in America, some changes have been introduced to deter forgers: the current $100 bill has a slightly enlarged and off-centre portrait of Franklin.

One final way to beat the forgers is even more drastic: do without notes at all. Yet the merits of plastic cards, Internet money or e-cash have been touted for many years without appearing to make much impact on the demand for paper money. If anything, the pattern has been for these new forms of money to replace not cash but cheques. Demand for paper money has been rising, not falling, as countries have got richer.

The best and the brightest

So who has the best banknotes? Almost everybody would agree that America's should be at or near the bottom. Top position depends, naturally, on taste, although it is often the more obscure countries, such as Guatemala, that print the most attractive notes. Many poor countries' notes, especially some of those in Africa, have more or less crumbled away thanks to repeated use (and a serious shortage of small change).

In Europe, some aficionados praise the modern designs of countries such as the Netherlands and Finland. Over the past decade, most of the countries of Eastern Europe and the ex-Soviet Union have chosen to introduce new banknotes: when Belarus brought in one featuring animals, it rapidly became known as the bunny. The most attractive are said to be Estonia's and Macedonia's. In Afghanistan, the Afghani notes used by both the Taliban and the Northern Alliance all came from the same printer in Russia, and are equally undistinguished.

The best notes of all are, in many ways, those not printed by central banks at all. Many commercial banks have long printed their own notes: a fine collection of some printed by local country banks in Britain is currently on display at the British Museum. The big three Scottish banks still produce their own

notes, although they have to be backed one-for-one by Bank of England notes.

But the purest example is Hong Kong, all of whose banknotes have always been printed by the former British colony's commercial banks. For years, indeed, the Hongkong and Shanghai Bank acted as the colony's de facto central bank. Even today, its notes are much admired. In the collectors' market, old Hongkong Bank notes fetch exceptionally high prices—one note from 1867 was sold in London recently for £85,000 ($125,000).

As for the new euro notes, they mostly get low marks. They have been heavily criticised for the banality of their designs. In an effort to avoid offending anybody, they omit any images of people. The bridges and doorways that have been chosen instead are all supposedly imaginary, although one or two bear a suspicious resemblance to real-life examples. And plans to let each country add a national symbol to its notes have been dumped in favour of keeping the same designs everywhere.

That means that were Britain ever to join the euro, its notes would lose the queen's head. This has caused spluttering among monarchists and Eurosceptics alike. Yet it is worth recalling the date when the monarch's head first appeared on British banknotes: 1960. It should be hard to go to the barricades to defend a tradition that is less than 50 years old—but banknotes have seldom been anything other than controversial.

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Economics focus

Is Santa a deadweight loss?

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Are all those Christmas gifts just a waste of resources?

ECONOMICS has long been known as the dismal science. But is any economist so dreary as to criticise Christmas? At first glance, the holiday season in western economies seems a treat for those concerned with such vagaries as GDP growth. After all, everyone is spending; in America, retailers make 25% of their yearly sales and 60% of their profits between Thanksgiving and Christmas. Even so, economists find something to worry about in the nature of the purchases being made.

Much of the holiday spending is on gifts for others. At the simplest level, giving gifts involves the giver thinking of something that the recipient would like—he tries to guess her preferences, as economists say—and then buying the gift and delivering it. Yet this guessing of preferences is no mean feat; indeed, it is often done badly. Every year, ties go unworn and books unread. And even if a gift is enjoyed, it may not be what the recipient would have bought had they spent the money themselves.

Intrigued by this mismatch between wants and gifts, in 1993 Joel Waldfogel, then an economist at Yale University, sought to estimate the disparity in dollar terms. In a paper* that has proved seminal in the literature on the issue, he asked students two questions at the end of a holiday season: first, estimate the total amount paid (by the givers) for all the holiday gifts you received; second, apart from the sentimental value of the items, if you did not have them, how much would you be willing to pay to get them? His results were gloomy: on average, a gift was valued by the recipient well below the price paid by the giver.

The most conservative estimate put the average receiver's valuation at 90% of the buying price. The missing 10% is what economists call a deadweight loss: a waste of resources that could be averted without making anyone worse off. In other words, if the giver gave the cash value of the purchase instead of the gift itself, the recipient could then buy what she really wants, and be better off for no extra cost.

Perhaps not surprisingly, the most efficient gifts (those with the smallest deadweight loss) were those from close friends and relations, while non-cash gifts from extended family were the least efficient. As the age difference between giver and recipient grew, so did the inefficiency. All of which suggests what many grandparents know: when buying gifts for someone with largely unknown preferences, the best present is one that is totally flexible (cash) or very flexible (gift vouchers).

Non-cash gifts from extended family were found to be least efficient

If the results are generalised, a waste of one dollar in ten represents a huge aggregate loss to society. It suggests that in America, where givers spend $40 billion on Christmas gifts, $4 billion is being lost annually in the process of gift-giving. Add in birthdays, weddings and non-Christian occasions, and the figure would balloon. So should economists advocate an end to gift-giving, or at least press for money to become the gift of choice?

Sentimental value

There are a number of reasons to think not. First, recipients may not know their own preferences very well. Some of the best gifts, after all, are the unexpected items that you would never have thought of buying, but which turn out to be especially well picked. And preferences can change. So by giving a jazz CD, for example, the giver may be encouraging the recipient to enjoy something that was shunned before. This, and a desire to build skills, is presumably the hope held by the many parents who ignore their children's pleas for video games and buy them books instead.

Second, the giver may have access to items—because of travel or an employee discount, for example—that the recipient does not know existed, cannot buy, or can only buy at a higher price. Finally, there are items that a recipient would like to receive but not purchase. If someone else buys them, however, they can be enjoyed guilt-free. This might explain the high volume of chocolate that changes hands over the holidays.

The thought actually does count

But there is a more powerful argument for gift-giving, deliberately ignored by most surveys. Gift-giving, some economists think, is a process that adds value to an item over and above what it would otherwise be worth to the recipient. Intuition backs this up, of course. A gift's worth is not only a function of its price, but also of the giver and the circumstances in which it is given.

Hence a wedding ring is more valuable to its owner than to a jeweller, and the imprint of a child's hand on dried clay is priceless to a loving grandparent. Moreover, not only can gift-giving add value for the recipient, but it can be fun for the giver too. It is good, in other words, to give as well as to receive.

The lesson, then, for gift-givers? Try hard to guess the preferences of each person on your list and then choose a gift that will have a high sentimental value. As economists have studied hard to tell you, it's the thought that counts.

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* “The Deadweight Loss of Christmas”. *American Economic Review*, December 1993, vol 83, no 5.

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Artificial intelligence

2001: a disappointment?

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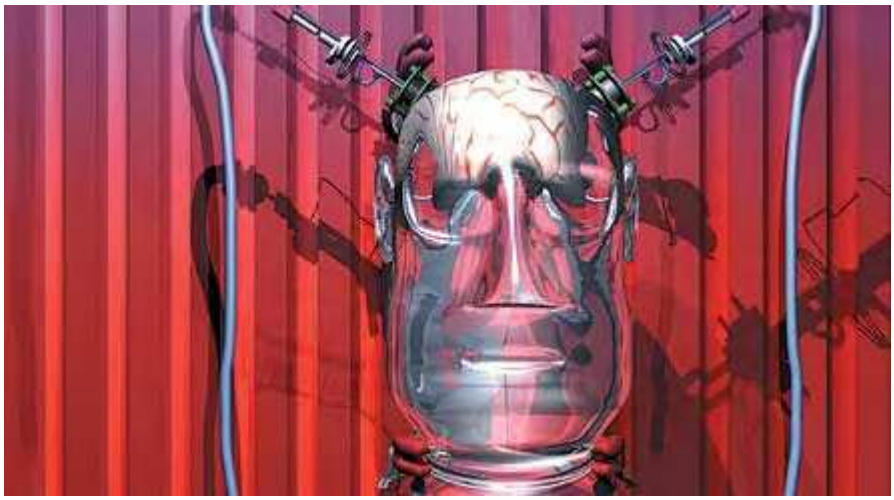

Machines are not as intelligent as Kubrick's film imagined. But they are more life-like than ever

THE scene is prehistoric earth. Strauss's timpani crash out their epic chorus, and the sun rises on the dawn of man: apes, mastering primitive tools for the first time. Cut to 2001. A space station orbits the earth. A human colony inhabits the moon. And an intelligent computer, called Hal, guides a manned expedition to Jupiter. Man has evolved.

Not, though, to the technological heights imagined by Stanley Kubrick in 1968, when he released the movie “2001: A Space Odyssey”. This year, we can now say at the safety of its end, did not bring us a Hal, or anything like it. Computers can play a pretty good game of chess, transliterate speech and recognise handwriting and faces. But their intelligence does not touch our own, and the prevailing scientific wisdom seems to be that it never will. There will be no David, the boy-android of “AI: Artificial Intelligence”, Steven Spielberg's Kubrick-inspired film of last summer. After half a century of frustrations and dead-ends, AI research has become famous not for success, but for failure.

Kubrick, of course, had larger designs than crass futurology. Intellectuals saw his film as a satire about the failure of language. For some souls, it became a religious experience. At a screening in Los Angeles, one member of the audience looked at the weird star-child in mysterious orbit about the earth at the film's end, ran down the aisle and crashed through the screen shouting “It's God! It's God!”

One of Kubrick's clearer preoccupations was the evolution of technology. Humans had evolved, from dawn-of-man apes, and so had technology, from bone clubs to sentient machines. Machines may not yet be intelligent. But they are clearly evolving, and in a way that, more and more, seems intimately related to the evolutionary mechanisms of life.

Our language hints at a connection between life and machines. “Viruses” and “worms” have begun to infect computers, replicate their code and proliferate thousands of digital copies across the World Wide Web, many times faster than any natural pathogen. Computer scientists “breed” programs, not *in vitro* but *in silico*, in virtual laboratories inside their computers. Poorly-performing computer code is killed off. Superior code is spliced with sibling programs and bred again. Computer languages evolve, generation succeeding generation.

Peer more closely, and the intimacy deepens. At its core, safely sheathed inside the protective

metabolising cell, life is an information processor, a spiral double-helix molecule called DNA. DNA is both the self-replicating instructions for life and the computer which carries them out. Watching the fluffy, downy seeds float down from the willow tree at the bottom of his garden inspired this from Richard Dawkins, a British biologist:

> It is raining instructions out there; it's raining programs; it's raining tree-growing, fluff-spreading, algorithms. That is not a metaphor, it is the plain truth. It couldn't be any plainer if it were raining floppy discs.

Biological viruses replicate themselves inside cells, fooling their hosts into lending them the metabolic machinery of life which they themselves lack. Software viruses use the machinery of computers in much the same way, exploiting their ability to copy instructions quickly and at high fidelity. For inspiration in the design of computer “immune systems”, software engineers are increasingly turning to biology.

Life evolves by building on its own complexity. Technology evolves by building on past knowledge. As David Ackley of the University of New Mexico points out*, the evolution of computer technology claims a special kinship with life. Life processes information, and it advances by evolving more powerful information-processing techniques. Evolutionary breakthroughs have come with breakthroughs in life's software.

For inspiration in the design of computer “immune systems”, software engineers are increasingly turning to biology

Life began with direct coding on bare, carbon-chemistry hardware, like amino acids and proteins. Higher programming languages, like DNA and RNA, evolved gradually. Computers began in a similar fashion, with programmers coding on to the bare machinery of their circuits. Higher programming languages have followed, each generation more powerful than the last.

There is, of course, one big difference between biological and machine evolution. It took life billions of years to evolve the information-processing skills that lie behind the evolution of the human brain. Computers have made giant strides in half a century.

Life in silico

Computers sprang from our minds. More than that, they are models of how we think—or thought—that our minds work. Alan Turing, a British mathematician popularly remembered for his wartime code-cracking work on the German Enigma machine, is cherished among geeks for earlier, theoretical work on a “universal computer”. This machine, which laid much of the intellectual groundwork for modern computing, works like a plodding human logician, advancing steadily and discretely, step by deliberate step, until its task is complete.

As the vacuum tubes of the first, serial computers fizzed and crackled for the first time, their designers must have recognised in them a shared kinship. Here were electronic minds, capable of the same deliberate, problem-solving steps that governed their own thoughts. Giant electronic brains were sure to follow. Amid high expectations, the research field of artificial intelligence was born.

By the late 1960s, however, it was dawning on AI scientists that rational thought had its limits. Computer-controlled robots could not even reason themselves from one end of a room to the other. Scientists tried to cut corners, replacing the baffling complexity of the real world with one made only of bare walls, doors and simple geometric shapes. But these defeated the computers too. Shakey, a 1.5m-tall contraption that rattled around the Stanford Research Institute in the early 1970s, did celebrate the odd success. But most of the time, Shakey was floored by his infantile world, unable to keep track of where he was or what he was doing. Shakey was seriously stupid.

Amid disillusion, AI's second age was born. Central, top-down control lost currency. There was no pilot in the cockpit of the brain, directing body and mind. Intelligence was rediscovered as the subtle interaction of many scattered parts. By itself, each part was stupid. Working together, they achieved profound results. A single ant is not God's brightest creature. But as colonies, ants engage in food cultivation, temperature regulation, mass communication (using scent trails) and bloody, organised warfare. Ant colonies run themselves with an efficiency that outstrips human society. But no single *über*-ant manages the show.

Intelligence was rediscovered as the subtle interaction of many scattered parts

Peering into the grey matter of the brain, you discover the same phenomenon at work. There is no Intel inside, a single processing unit cycling through a program called “humanmind.exe”. In its place are 100 billion neurons. By itself, each neuron performs simple, seemingly trivial, calculations. Yet wired together in the obscure wetware of the brain, these neurons somehow give rise to the mind.

All too soon, however, the hopes kindled by AI's second age dimmed as well. Using chips and computer programs, scientists built artificial neural nets that mimicked the information-processing techniques of the brain. Some of these networks could learn to recognise patterns, like words and faces. But the goal of a broader, more comprehensive intelligence remained far out of reach. There was plenty of processing power. By the end of the 20th century, computer speeds were doubling every year, maintaining an exponential rate of growth that began with the appearance of the very first mechanical calculating devices 100 years before. The problem was what to do with it.

The sort of parallel processing that goes on in the brain seemed to need software (or hardware wiring) of impossible complexity. It was not a simple problem of scale. Computer chips, for instance, have achieved great strides in scale. A 1971-vintage Intel chip contained 2,300 transistors. The company's latest products pack in more than 10m. But chips have not become more complex. The basic patterns of wiring, though vastly miniaturised, remain the same.

The problem was rooted instead in the top-down, controlling way in which software was designed to work. Top-down control requires top-down organisation. However, the bigger and the more complicated the task, the more difficult it becomes to organise it from the top, even for relatively simple, human-built systems. Already, for instance, engineers struggle to maintain the software that runs telephone exchanges.

These networks are made up of tens of millions of connections. Each of the brain's 100 billion neurons connects itself to 10,000 others. Inside a single human head are 1,000,000,000,000,000 connections—enough for 100m modern telephone exchanges. The scattered architecture of intelligence would have to run on a new sort of software, working from the bottom up and organising itself, like life does, into greater and greater complexity. The software crisis had arrived.

And so dawned the third age of AI. Its boosters abandoned hopes of designing the information-processing protocols of intelligence, and tried to evolve them instead. No one wrote the program which controls the walking of Aibo, a $1,500 robotic dog made by Sony, the Japanese consumer-electronics giant. Aibo's genetic algorithms were grown—evolved through many generations of ancestral code in a Sony laboratory.

The Cambrian era

On one level, this arc of scientific endeavour describes a journey towards a more sophisticated understanding of the mind. As a young man, the roboticist Hans Moravec worked on the sort of theorem-proving reasoning programs that controlled Shakey. By 1988, Mr Moravec was writing:

> The deliberate process we call reasoning is, I believe, the thinnest veneer of human thought, effective only because it is supported by this much older and much more powerful, though usually unconscious, sensorimotor knowledge. We are all prodigious Olympians in perceptual and motor areas, so good that we make the difficult look easy. Abstract thought, though, is a new trick, perhaps less than 100,000 years old. We have not yet mastered it. It is not all that intrinsically difficult; it just seems so when we do it.

On another level, though, the three ages of AI chart not human progress, but the evolution of the computer itself. First came serial computing and rational thought. At fast enough speeds, serial computers were capable of feats of intellectual brilliance, like playing chess. But they were hopelessly bad at more complex tasks, such as the motor skills we take for granted. Faster central processors (simulating neural networks) and the growth of computer networks (linking many machines together) created the parallel-processing architecture of AI's second age, in which distributed societies of machines crunched numbers together, achieving feats of intelligence beyond simple serial processors. The first flickering signs of digital life that flashed across these networks inspired the third age of AI. Computers were by now looking more recognisably like the stuff of life, and scientists had begun to borrow directly from its book.

There is, of course, nothing to say that computers and computer software

will continue to evolve in ways that replicate the patterns of life. There may be some hidden, basic difference between carbon and silicon that limits (or, alternatively, enhances) the evolutionary potential of machines, damning them forever to patterns of life that are no more exalted than the humble virus. Recent research, however, hints at greater potential.

Thomas Ray, an American biologist, wants to create, in a virtual world of evolving software, the same explosion in complexity that happened during earth's Cambrian age, 570m years ago, when multicellular life made its first appearance. A dummy run in 1990 of Mr Ray's virtual world, called Tierra, produced interesting results.

Mr Ray “seeded” his world with simple, self-replicating software programs. As he watched them evolve, he saw parasites develop—shorter bits of machine code which had found a way to latch on to other programs and borrow their code in order to reproduce. But although the overall ecology had become more complex, the programs themselves had not. On the contrary, Tierra bred shorter, more efficient bits of code.

A second experiment, conducted over networked computers, hopes to make amends. This time, each of Mr Ray's seed programs has both the ability to reproduce and to migrate from computer to computer in search of hospitable habitats. Mr Ray hopes that, in this more complex environment, his programs will evolve more complex behaviour, like migrating around the world to keep to the shadows of night-time.

Early results have been hard to decipher: humans have a hard time making sense of evolved machine code. But Mr Ray thinks that he may have found the first signs of “cell differentiation”, which was the key innovation in the Cambrian age that produced multicellular life. The bits of code that allow Network Tierra programs to migrate began as a single task, or cell. In some evolved programs, this cell has split in two.

Outside the laboratory, meanwhile, computer software continues its relentless evolution. Mr Ackley suspects that this process may, by itself, be drawing closer to some sort of Cambrian explosion in evolutionary potential. Gradually the computer algorithm, a finite set of steps that takes you from A to B, is being replaced by the notion of distributed computing, in which autonomous programs, each designed for a specific task and running on different machines sprinkled around the Internet, combine and interact with each other to perform complex calculations.

Single, monolithic algorithms evolve in the opposite direction to life, from complexity to greater simplicity and efficiency. Distributed computing, on the other hand, seems to capture some of the bottom-up characteristics of life's complex, self-organising software. Computer software may evolve its own solutions to the software crisis, not in the lab, but in the rich ecology of the global economy, across the electronic wilderness of the world's computer networks.

Then, alas, gigadeath

To what end do our computers silently code themselves? Western culture is full of apocalyptic warnings of a clash of rival species. Hugo de Garis, an Australian roboticist, predicts “gigadeath”, our imminent genocide. Less encumbered by Darwinism and its intellectual fellow travellers, eastern culture imagines a more co-operative, symbiotic future with evolving machines: for example, the curvaceous cyborgs of Masamune Shiro's *manga* comic books.

Biological life suggests both futures are possible. Life competes fiercely for the limited resources that allow it to metabolise, and so propagate itself. When it suits self-replication better, however, life also co-operates, in loose alliances or seamless symbiogenesis. On the shores of Brittany, relates Lynn Margulis, an American biologist, can be found a strange sort of seaweed that turns out not to be seaweed at all. Under the lens of the microscope the seaweed becomes green worms. They are green because they are packed with photosynthesising algae, which lives, reproduces and dies inside the body of the worms. Obligingly, they produce the food that the worm “eats”—the worm's mouth is entirely redundant.

The architecture of every cell in the human body—and the body of all plants and animals, for that matter—was made possible by an earlier, symbiogenetic fusing of simpler single-celled creatures.

Bacteria live in the human gut, in eyelashes and other startling places, making us massive, walking colonies of micro-organisms. In the same way, an impartial observer might conclude, humans have become symbiotically intertwined with their machines. Humans work to further the replication of computer code, while computers help to propagate human code, supporting the highly-evolved economic and financial infrastructure that sustains human society. The two are not so intimately related as flatworm and algae. But neither, realistically, can each do without the other.

The emergence of evolved software and hardware that is grown, but not understood, deepens human dependence. Perhaps the physical relationship will deepen as well, with chip implants in brains, or human minds dubbed and downloaded into machines. Alternatively, man and machine might dispense with each other and part ways. The tree of life grows in on itself, says Mrs Margulis, but it branches as well.

Maybe, in the end, humans will never know the larger truth. Hal was alien to his human crew—a red eye, behind which lurked an unfathomable intelligence. Since 1968, the computer has become more alien still. Kubrick had no inkling of the networked computer, with its potential for massively distributed intelligence. Perhaps humans will stay ignorant of the grander design, just as a single ant has no comprehension of the intelligence of the colony. When 2001 really does arrive, we may never know it.

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* "Real Artificial Life: Where We May Be", David Ackley, Department of Computer Science, University of New Mexico

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About sponsorship

Watercolours

Mired in the past?

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From The Economist print edition

Painting with water should respond to the times. Some lessons for England from an unexpected quarter

AT THE British Royal Watercolour Society's spring exhibition in 1993, one watercolour attracted particular attention: a pleasant view of alpine ski slopes at Klosters. It happened to be painted by Prince Charles, heir to the British throne, who took art lessons from, among others, John Ward, a member of the Royal Academy. The work was competent but, in the view of Chris Beetles, a passionate collector and dealer in London, such “gifted amateurs” have done more harm than good to watercolour as a serious art form.

Bernhard Vogel, “Dresden Altstadt”, 2001

Why? Because watercolour in Britain tends to model itself, year in year out, on the work of celebrated British artists of the late 18th and early 19th centuries. The two watercolour societies which dominate the medium in Britain have been “hijacked by elderly professionals who tend to elect clones of themselves,” says Mr Beetles. “For half of what you see, it looks as if the clock stopped in 1880,” says Frank Whitford, an art critic for the *Sunday Times*.

For excitement these days, you have to look across the Channel to another tradition, which was born in Austria in the 19th century, revitalised by the German expressionists in the early 20th century, born again in the 1970s, and is alive and well in the galleries of Linz, Salzburg and Vienna. Although contemporary watercolour is appreciated, and bought for high prices, all over continental Europe, the wellspring of inspiration for the last two decades has been Austria.

The painter as fighter-pilot

The essence of watercolour, say aficionados, is a highly personal, immediate relationship between the artist and his subject, whether it is a still life, landscape, or the human figure. Watercolours can be done quickly, on site, and mistakes cannot be corrected—the work must be changed to incorporate them. The watercolourist takes risks, reacts like a fighter-pilot to changes in front of him, and races against time, light and the weather. The greatest of all, J.M.W. Turner, had himself lashed to a ship's mast to record a storm first-hand. But the experience of man in nature—the essence of watercolour—should produce new results for each generation. In Britain, lately, it hasn't.

Even the “elderly professionals” admit there is a problem. “Yes, there is an establishment,” says Ronald

Maddox, the president of the Royal Institute of Painters in Water-Colours (founded in 1831). “It's quite difficult to get elected, and it takes time.” Only two to four members each year are voted on to the august body of 64. In its heyday the Royal Institute occupied its own building at 192 Piccadilly, provocatively close to the Royal Academy, but the lease ran out in 1971.

The Royal Watercolour Society (RWS, with 83 members) was founded even earlier, in 1804, because the Royal Academy did not take watercolours seriously. It was fantastically successful. The watercolourists worshipped Turner, though he never became a member, because he handled the interplay of water-based paint and the luminescence of the underlying paper in a way that has never been surpassed. Despite that, he was unorthodox, using thick white paint (called bodycolour) in places where the purists would have let the paper shine through.

The watercolour establishment has bickered ever since about what constitutes a true watercolour. In the early days, painters were disqualified for using ingredients other than water-based pigment and paper. Even today, the most celebrated watercolour competition, the annual Singer & Friedlander/*Sunday Times* prize, stipulates that entries should uphold the “finest traditions of British watercolour painting”.

Upturned boats in estuaries

However, the rules are bending. In June 2001, for the first time, a work containing elements of collage was accepted and even won a prize. Thicker acrylic paint is also allowed now, on the pretext that it is water-based. But half the Singer & Friedlander entries are of the 1880 variety, because half the jury prefers that kind of thing, according to an insider.

Even highly competent watercolourists in Britain find it difficult to break the £1,000 ($1,450) barrier. Many sell paintings for a third of that. Galleries will take 50% plus 17.5 % value-added tax, which means that watercolourists must sell around 40 paintings a year to scratch a living, or combine their art with other jobs.

The British rightly esteem their watercolour tradition. Francis Bowyer, president of the RWS, says it is “a very British medium. It is the one thing we have given the arts.” There is huge interest at an amateur and professional level. The sheer numbers of watercolours in the country by dead and living artists keep prices down. The ranks of the professionals, however, are not very deep. And they are getting thinner, because most art-school graduates are eclectic about materials.

The watercolourist races against time, light and the weather. Turner once had himself lashed to a ship's mast to record a storm first-hand

In the early 20th century some English watercolourists were inspired by the French Impressionists, such as Sisley, Cézanne and later Signac, but that was about the first and last time that continental painters directly influenced English watercolour. The last surge of innovation came in the second world war and soon after, when war artists, as in the first world war, found it the ideal medium of instant record. Paul and John Nash, John Piper and Graham Sutherland, for example, developed a stark, symbolic style that allowed watercolour, whose traditional diet is romance and idyll, to handle grim and horrific subjects too.

But since then, British watercolours have continued in glorious isolation, reverting to the 1880 type: “upturned boats in estuaries”, as one British artist complains. Ask most British watercolour experts whose work they rate highest today, and they will probably say that of Leslie Worth, a fine landscape painter, but 78 years old. A handful of Britons have emigrated because of this impasse: notably David Remfry to America, five years ago, and Simon Fletcher to Europe in 1980. What did they discover? In Mr Fletcher's case, a decade—the 1980s—of resurgence in Austrian watercolour.

Beside Turner, Alt

This is not as surprising as it sounds. In 1972, Walter Koschatzky, then director of the graphic collection at the Albertina museum in Vienna, one of the finest collections in the world of contemporary art on paper, was discussing a pan-European exhibition with Edward Croft-Murray, keeper of prints and drawings at the British Museum. Mr Koschatzky said he of course agreed that Turner should have pride of place. “What on earth do you mean?” said an angry Mr Croft-Murray, accusing Koschatzky of Austrian

false modesty: “Alt sits right next to Turner.”

The watercolours of Rudolf von Alt (1812-1905), whether pastoral idylls, Vienna cityscapes or bustling markets, have all the qualities that his English contemporaries most revered: luminosity, spectacle, communion with nature, joy of life. Moreover, Alt was a purist—although, like Turner, he occasionally used bodycolour—creating drama and grandeur from paper and just three pigments, blue, yellow and red, clutched in his left hand. Sadly for the Albertina, but quite correctly says Mr Koschatzky, a large number of Alt watercolours, discovered to have been appropriated during Nazi times, were dispersed last year to the pre-Nazi owners or their descendants.

At the turn of the 20th century the Expressionists of German-speaking Europe, notably Emil Nolde, Ernst Ludwig Kirchner, Erich Heckel, used watercolour to convey more freely and immediately than oils man's unfulfilled yearning in the face of nature. Egon Schiele, an Austrian, used watercolour sparingly to great effect, to flesh out his often harrowing pen-and-ink figures, or he mixed it with paste and scraped it around, to torture his figures or landscapes even further.

Gottfried Salzmann, “Berlin: Le Ciel de la Porte”, 1997

Those Expressionist elements, and then the *Sturm* movement in Berlin, were assimilated into the Austrian watercolour tradition. The great names were Oskar Kokoschka (1886-1980) and Kurt Moldovan (1918-77). But Kurt Absolon, born in 1925, would have been the greatest of his generation, Mr Koschatzky believes, had he not died in a road accident in 1958.

Painting the city

It was an exhibition at the Albertina in 1973, of 100 Viennese watercolours from 1780-1900, including works by Alt, Daffinger, Fendi and Romako, that did much to inspire the next generation of Austrian watercolourists. The best among contemporary Austrians, according to most critics, is Gottfried Salzmann, born in Salzburg in 1943 and now living in France. Mr Salzmann was the baby in an Austrian “gang of four” watercolourists who exhibited in Salzburg and Vienna in the late 1960s: the others were Moldovan, Rudolf Hradil and Hans Kruckenhauser. He is a master of cityscapes, which he paints in a free, architecturally sound, spacious style. Americans love his views of Manhattan, sometimes distorted as reflections in plate glass windows or car roofs. He is a master of large skies and the inner landscapes of rock and water.

One of his early admirers was Wolfgang Graninger, a Salzburg music teacher, who bought his first Salzmann in 1971 and built up a collection of 200 watercolours and etchings, which he gave to the Albertina in 1982. “I can't stop myself collecting,” says Mr Graninger, who has done the same with other Austrian artists, all on his modest government salary. Mr Koschatzky recently conferred on him the honorary title of professor for his services to Austrian art.

Mr Graninger's latest protégé is another Salzburger, Bernhard Vogel, whose paintings these days dominate the Graninger apartment. Mr Vogel proved long ago, however, that he needs no godfather. He is one of only two Austrian watercolourists—Mr Salzmann is the other—who have found a ready market in London and New York as well as a big following at home. He first showed in London in 1992, at the Waterman Fine Art gallery, and sold everything.

He acknowledges his debt to Salzmann, Kokoschka and Moldovan. He paints highly expressionistic land- and cityscapes, usually on the spot, even if that means sitting on a traffic island in the rain. And he is prolific—some critics say too prolific, with too vivid a use of colour to achieve the transparency that is so valued in watercolour. But all acknowledge that the pictures are arresting. His most interesting recent paintings were of the BASF chemical works at Schwarzheide, in eastern Germany, commissioned by the company.

The experience of man in nature should ideally produce new results for each generation. In Britain, lately, it hasn't

Mr Vogel is a tireless self-publicist. He has a website, with a chat-room for fans; he runs art courses during which he paints, while the students watch or paint too; he has published several books on watercolour technique, and gives away many copies. The books are mostly a vehicle for his powerful cityscapes and flower paintings. But he also

describes well how the artist attunes himself to his subject: “I am like a cat, which walks up and down apparently without motive then turns around and around until it sits.” Having picked his spot he acclimatises himself, letting everything—people, cars, light, noise and smell—work on him before picking up his brush. “Apparently trivial details can suddenly become the major theme, the foreground can disappear in favour of the hinterland, or vice versa.” Once the focal point of the painting is achieved, the rest of the surface may be littered with what look like random splashes and mistakes.

Simon Fletcher, the Englishman in voluntary exile, and a friend of Mr Vogel, has embraced the Austrian tradition. Like Mr Vogel he teaches by example, in Austria and Bavaria, and he favours painting on the spot, without preliminary drawing, building up tones with plenty of water, which is not the English way. Mr Fletcher, who is now almost an honorary Austrian although he lives in France, has searched in vain for evidence that watercolour is moving forward in other parts of Europe besides Austria and Germany.

Mr Koschatzky has his own contemporary heroes, although he believes the 1980s were the high point of Austrian watercolour. In his view, even Austrian artists have succumbed now to “aimlessness” [*Ziellosigkeit*], because they are under such pressure to produce something new and original. The computer raises too many possibilities.

He has spent his life in the service of watercolour. In 1955, as director of the Galerie Joanneum in Graz, his home town, he began a state-financed programme to restore 1,600 watercolours in private hands in Steiermark that had been damaged during or just after the war. In 1972 he was one of the pioneers who showed that a large-scale international exhibition of watercolours is possible, if the lighting is carefully adjusted to avoid damaging the paintings.

Mr Koschatzky lives with his wife Gabriela, also an art expert, in a ground-floor apartment in the Schönbrunn palace. It is bristling with paintings. He proudly shows a 70th birthday present from Mr Salzmann, a framed sheet of paper on which are painted stamp-sized miniatures of 70 Salzmann paintings. “Each one has the quality of the original,” says Mr Koschatzky.

What can other countries learn from the Austrian experience? First, the need to be aware of what is going on elsewhere in Europe. Many British painters know and like the German Expressionists. Mr Bowyer of the RWS is quick to praise Nolde's watercolours as “superb; few English painters would disagree”. But that is where the appreciation ends, at around 1950. A European Federation of Watercolour Societies was founded five years ago; Messrs Maddox, Salzmann and Vogel, among others, are honorary members. But it is having some difficulty putting itself on the map.

If Mr Koschatzky's experience is anything to go by, it will take another big exhibition to inspire a generation. It should be in London, in a major gallery, such as the Royal Academy, showing the best of European and perhaps American contemporary watercolours. But getting even the English contingent together could be a struggle.

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Chronicles of chronology

The power of seven

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From The Economist print edition

Bridgeman

The week, to which we are all enslaved, has a strange and erotic history

WHY does *The Economist* appear every seventh day? The answer is because we, like you, still regulate our lives by a septimal law that Mesopotamian star-gazers framed, and local warlords imposed, more than 40 centuries ago. Our weekdays and weekends and weeks off, our dress-down Fridays, hectic Saturday nights, Sundays sacred or profane, and Monday-morning blues all have their origin in something that happened around 2350BC. Sargon I, King of Akkad, having conquered Ur and the other cities of Sumeria, then instituted a seven-day week, the first to be recorded.

Ur was probably using weeks, less formally, long before Sargon came marching in. The Sumerians were great innovators in matters of time. It is to them, ultimately, that we owe not only the week but also the 60-minute hour. Such things came easily to people who based their maths not on a decimal system but on a sexagesimal one.

Why were these clever chaps, who went for 60 because it is divisible by 2, 3, 4, 5, 6, 10, 12, 15, 20 and 30, fascinated by stubbornly indivisible seven? In ancient Egypt and ancient China, “weeks” of ten days were long in use—much more understandable, as people have ten fingers to count on, not seven. (And yet you have to wonder, if the Pharaohs' long week was intended to drive their workforce harder, whether it provoked the Exodus?)

To the Sumerians, ultimately, we owe not only the week but also the 60-minute hour

Above all, why should the Sumerian system have not merely endured but become an almost universal conqueror? Ur's posterity now sways regions Sargon never knew. Its lead has been slavishly followed by Babylonians, Greeks, Romans, Hindus ancient and modern, Muslims and most of the present inhabitants of Europe and the Americas. Even China surrendered a good thousand years ago.

The year, the day and (not quite so obviously) the month are natural divisions of time. The week is an oddity. The moon's four phases are a near miss, but still a misfit, for weeks. You will be in trouble (like H.G. Wells's “The Man Who Could Work Miracles”) if you try to make the moon perform every 28 days, instead of its usual 29½ and a bit. The Sumerians had a better reason for their septimalism. They worshipped seven gods whom they could see in the sky. Reverently, they named the days of their week for these seven heavenly bodies.

So do most of us today. Greeks, Slavs, and many Jews and Muslims, although loyal to Ur's seven-day week, have shaken off its planet-gods; but a great majority of Christians and of Hindus, and virtually all “unbelievers”, still pay their respects daily to the Sumerian seven—under changed names, of course.

For the Sumerians themselves, seven was a very special number. They conceived of a seven-branched Tree of Life, and of seven heavens, that were passed to Babylon and symbolised there in seven-tiered ziggurats, or hanging gardens. Sumeria's Gilgamesh epic describes the rite of passage through which Enkidu the ape-man became human, thanks to the obliging Shamhat:

> While the two of them together were making love,He forgot the wild where he was born.For seven days and seven nightsEnkidu was erect and coupled with Shamhat.

In spite of all that, Ur's seventh day was not holy. On the contrary, it represented danger and darkness. It was risky to do anything at such a time. So it became a day of rest.

Ever since the time when Abraham trekked westward from Ur, Mesopotamian influences had helped to form Hebrew traditions. The Jews got the story of the Flood from Sumeria. They got the seven-day-week idea early enough to use it in the account of the Creation given in Genesis. But there may have been some garbling in the transmission. The Sumerians would not have depicted the Creator as just sitting back, satisfied, on the seventh day; to them, he would seem to have stopped work, wisely, because anything attempted on that day must end in tears. The week reached India from Mesopotamia more than 2,000 years ago, in time to get into some of the Hindu scriptures. But the Hindus' creation stories were far more complex than Hebrew ones. They never accepted a Sabbath; their scriptural references to the week, as in the Brahmavaivarta Purana, were almost casual:

> When Brahma had fashioned this universe, he placed his seed in Savitri, his best wife. When she was ready to give birth, she bore the year, the month, the days of the week, the seven Pleiades.

The Hindus were keen sky-watchers and sometimes keen septimalists. They had noted the Pleiades (Krttikas). Noting also the Great Bear's seven stars, they identified them with the Seven Sages who survived the Flood, combined these starry sevens, and made the Pleiades the wives of the Sages. Yet, in their absorbent way, they happily adopted the seven planet-gods who arrived with the original Sumerian week. And, in their retentive way, they held on to them. In modern Hindi, as in ancient Sanskrit, the planets we call Mars and Mercury are Mangal and Budh. The days called Tuesday and Wednesday in English, and *mardi* and *mercredi* in French, are Mangalvar and Budhvar.

Elsewhere, new names have been showered on the old gods and their planets. Yet, to an astonishing extent, they have retained their identities—and kept their places in the order of the days of the week.

Enter Ishtar and Venus

The first recorded change came when the Sumerian week-system was transposed into the Semitic language spoken in the Babylonian empire. The day-names used in Babylon around 700BC (running as if from our Sunday to our Saturday) were: Shamash (Sun), Sin (Moon), Nergal (god of war), Nabu (god of scribes), Marduk (supreme god), Ishtar (goddess of love) and Ninurta (god of farming). They had simply replaced their Sumerian predecessors; for example, Ishtar had succeeded Inanna both as a planet and as the presiding deity of love.

By the time the Romans had adopted the system, the planet-gods wore names more familiar to us: (in the same order) Sol, Luna, Mars, Mercurius, Jupiter, Venus, Saturnus. But their identities remained almost intact. The name-chain Inanna-Ishtar-Astarte-Aphrodite had led to Venus. Nergal lived on in Mars. Aptly, the god of scribes had mutated into the heavenly messenger, Mercurius.

The seven-day system has leapt blithely from one religious base to another, from Ur of the Chaldees to Israel, to Islam

In English and the other Germanic languages, Mars, Mercurius, Jupiter and Venus were, in time, renamed in honour of Teutonic gods. From Tiw, Woden, Thor and Freya came the names of our weekdays from Tuesday to Friday. Even so, the chain remained unbroken. Although English Wednesday and Scandinavian Onsdag salute the god Woden or Odin, this came about only because he was identified with Mercurius. Similarly, the love-goddess Freya took the place of Venus—and her place in the weekly sequence.

Among Europe's Romance and Celtic languages, the Ur-idea of naming days from planet-gods is obvious. Mercurius is as recognisable in the French *mercredi* as in Romanian Mercuri or Welsh Mercher. The Slav languages, however, taking a lead from Greek, prefer numbering systems. (Five, in Russian, is *pyat*; Friday is *Pyatnitsa*. In Greek, Monday, Tuesday and Wednesday are *Deutera*, *Triti* and *Tetarti*; i.e.,

second, third and fourth.)

Saturnus, alone among the planet-gods, resisted Germanisation. And Saturday was “different” from other weekdays long before the two-day weekend developed. In ancient Rome it became somewhat inauspicious. Then it was, for a time, the Sabbath, both for Jews and for many early Christians. It is still *Sabato* in Italian, *Sabado* in Spanish, *Sobota* or *Subota* in the Slav languages.

Over the naming of Sunday some confusion has crept in, for which Constantine the Great is much to blame. In 321AD, when he ordered the cities of his empire to rest on this day, his edict was related to the sun, rather than to Christianity. Three centuries earlier, Augustus had officially recognised the week, with its Sumerian-style planet-gods. *Dies solis*, the sun's day, was mildly auspicious, but only the Christians made it really special as their day for congregational prayer, linked with the Resurrection and called the Lord's Day. Constantine chose to boost that day while invoking not Christ but the Unconquered Sun (the emperor himself, at that point, saw the two deities as one). He thereby gratified Christians without offending sun-worshippers.

So it was a shrewd move, at the time. But it left the naming of the day in schism. In its Germanic versions it is now strictly the Sun's day (Sonntag, Zonday, etc). But it is given to the Lord (Latin *dominus*, Greek *kyrios*) in Romance languages (*Domingo*, *Domenica*, *dimanche*) and Greek (*Kyriaki*), and the Celts are split, Welsh *Dydd Sul* confronting Gaelic *De Domhnaich*.

Stalin imposed first five-day and then six-day weeks on the Soviet Union

Most striking of all Sunday's names is the Russian *Voskresenye* (“Resurrection”), which endured through long years of imposed atheism. Do not imagine that Sumeria's week and its day-names have never faced any challenges. The French Revolution brought in a ten-day “week” whose days were, literally, numbered (the experiment lasted, officially, for 12 years, but never really took). As soon as the Bolsheviks seized power in Russia in 1917 they tried, but failed, to imitate the French revolutionaries (or the Pharaohs?). Later, for 11 years starting in 1929, Stalin imposed first five-day and then six-day weeks on the Soviet Union. The elimination of Sunday, with its strong religious associations, was one purpose of his experiments. They all failed, abjectly. Warned by this, the communist regimes established in other countries after 1945 did not even try to tamper with the Ur-old seven-day week.

Today, Sumeria's 4,400-year-old feat of cultural imperialism is triumphantly intact and more assured of universal acceptance than ever. How can this be explained? Seven is a thoroughly awkward number. It gives us a year of 52 weeks (another awkward number), plus the annoying extra one or two days which force us to keep buying new calendars.

The seven-day system's ability to challenge and, in time, overlay all others has always rested on its religious inspiration, not on its practical value. It has leapt blithely from one religious base to another, from Ur of the Chaldees to Israel, then on to Christendom, to Islam. It infiltrated the Roman empire before Christianity and reached India many centuries before the first Muslim invaders. European colonisers spread it through the Americas, but in the Old World, wherever Hindu or Muslim influences had penetrated, even the earliest European explorers found it was there before them.

Today, most of the human race takes it for granted that their activities are recorded in weeks. There are two groups: those who feel that the week has real religious significance and that there is something holy about one day in seven, and those who have no such feeling. In neither group will you find many people who know how the week came into existence, or came to matter.

“Men of old” knew. They could read it in the heavens. In a song of great antiquity like “Green grow the rushes O”, it was natural, perhaps unavoidable, to include the line “Seven for the seven stars in the sky”.

They are all still there: Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn. We may send out spacecraft to ring them round, but we ourselves are still held in the hebdomadal grip of the Seven.

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European media

Captain Kirch's troubled enterprise

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Leo Kirch's giant media group needs to raise large sums of money to cover its equally gigantic debts. Otherwise, it could go bust

IN THE 42 years since he founded the privately held Kirch group, based in Munich and now one of Europe's biggest media empires, Leo Kirch has overcome many crises. But none has been as severe as his current one. If it is to survive the next 12 months, his group, which has debts as large as *euro*6.5 billion ($5.9 billion), has some formidable financial problems to resolve.

Quite apart from its mountain of bank debt, Kirch may have to find *euro*2.5 billion or more next year to buy out equity investors in various parts of the group who hold “put” options to sell back their shares. These options were essentially bets that have turned against Mr Kirch as media shares have fallen and his ambitious pay-TV business has sputtered.

So precarious is Kirch's position that some of its most trusted bankers are starting to lose their nerve. Last week, Dresdner Bank, a big lender to KirchMedia, one of the three main parts of Mr Kirch's empire, refused to extend a secured *euro*460m loan and asked the group to repay the money by December 31st. Only after the jittery bank had obtained additional security did it give KirchMedia extra time to find the money—and then only a fortnight. Germany's banking regulator is also worried: it recently completed an inquiry into the level of security held by German banks that had lent to Kirch.

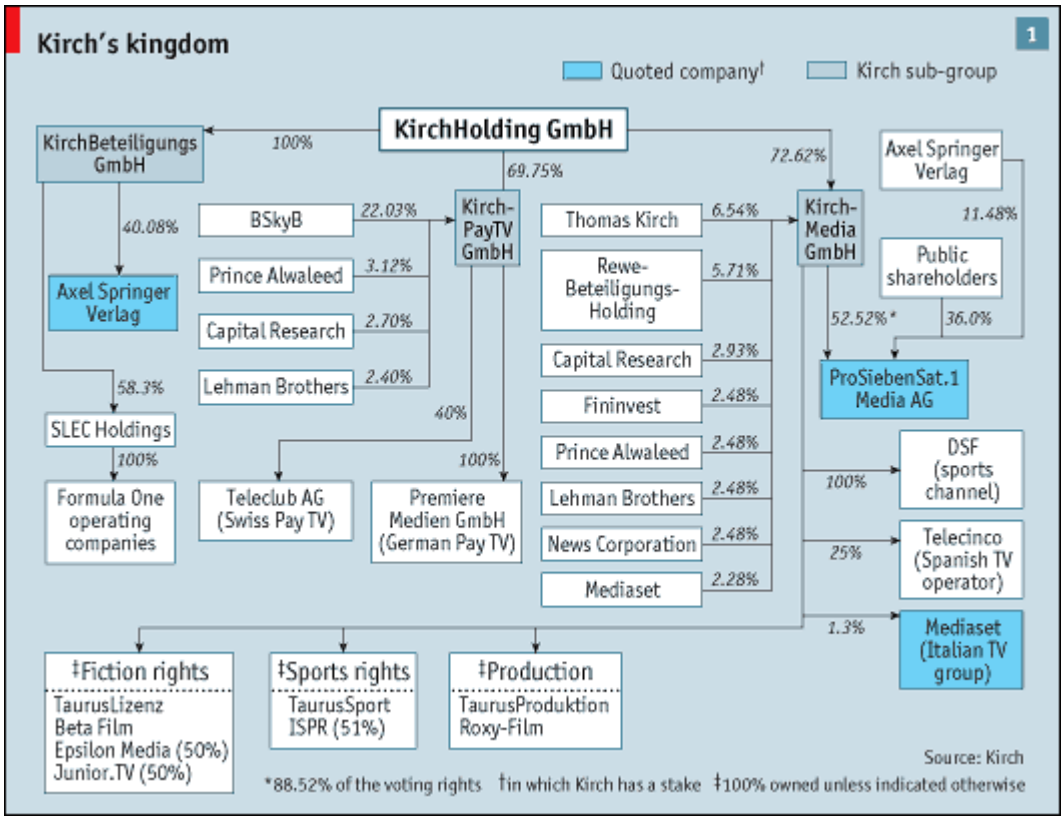
Dresdner's move came as a nasty and unexpected shock to Kirch's bosses. The additional security that the bank demanded takes the form of KirchMedia's 25% stake in Telecinco, a Spanish broadcaster. KirchMedia is now hoping to sell this for around *euro*500m, roughly half of what it was worth last year, so as to repay Dresdner. Yet before Dresdner dropped its bombshell, Kirch had been briefing analysts that the Telecinco stake would be sold to settle yet another of KirchMedia's obligations—one of the put options.

Floating or sinking?

Dresdner's lack of confidence could hardly have come at a worse time for KirchMedia, one of Germany's two biggest commercial broadcasters. Next June, Kirch hopes to float the company on the stockmarket. This would take place as part of a proposed merger with ProSiebenSat.1, a listed German commercial-TV group, in which KirchMedia has 52.5% of the shares and 88.5% of the voting rights. In effect, KirchMedia

would use the deal to take over ProSiebenSat.1's stockmarket listing. As Mr Kirch has voting control of both ProSiebenSat.1 and KirchMedia, he can ensure that the merger goes through. But this will not in itself raise any money; to do that, he must attract new shareholders.

Much depends on his chances of doing so—but he will not find it easy. Times are tough for European media companies, especially those that rely heavily on advertising revenues. To attract investors to KirchMedia, Mr Kirch will have to make a doubly convincing case, persuading investors not only that his group as a whole is solvent, but also that the proposed merger with ProSiebenSat.1 is driven by more than just the need to plug financial holes elsewhere in his empire.



In preparation for an eventual call on the capital markets, Mr Kirch chose in 1999 to split his sprawling empire into three sub-groups—KirchMedia, KirchPayTV and KirchBeteiligungs—all under a central holding company, KirchHolding (see chart 1). This empire is notoriously opaque. As no financial information is published for KirchHolding, there is no publicly available picture of the entire group's profits, cashflow or debts.

However, Kirch has given out debt figures for KirchMedia, the only one of the three sub-groups to publish any financial information. On June 30th, KirchMedia (excluding ProSiebenSat.1) had bank loans of *euro*1.4 billion, including the one from Dresdner Bank (see chart 2). Nearly all these were due within a year, which means that others besides Dresdner's may need to be renewed or repaid soon. Kirch refuses to comment on this.

Unnerved by the sharp decline in the value of all media assets this year, Kirch's bankers will also be worried by KirchMedia's trading performance. In the 18 months to June this year, all of KirchMedia's pre-tax profit of *euro*364m came from free-to-air TV broadcasting, through ProSiebenSat.1 and Telecinco. The other parts of KirchMedia lose money and generate no cash. Profits from the trading of film rights, the origins of Mr Kirch's fortune, were offset by debt-interest payments, and by losses at DSF, a sports channel, and at various new-media ventures.

Burdened 2

Kirch debts, billion

	Bank loans	Bonds	Total
KirchMedia:			
ProSiebenSat.1	0.3	0.5	0.8
Other companies	1.4	nil	1.4
Subtotal	*1.7*	*0.5*	*2.2*
KirchBeteiligungs	2.1	1.1	3.2
KirchPayTV	0.6	nil	0.6
KirchHolding	0.5	nil	0.5
Total	***4.9***	***1.6***	***6.5***

Sources: KirchMedia; *The Economist* estimates

Worse, ProSiebenSat.1, which has around 45% of the television-advertising market in Germany, has been hit by a slump in advertising. In its latest profit warning, the company said its pre-tax profits for 2001 would be 55% lower than last year. Its total market value is now *euro*1.2 billion, down from *euro*6.2 billion in

January. Axel Springer Verlag, Germany's largest newspaper-publishing group, has an option to sell its 11.48% stake in ProSiebenSat.1 to KirchMedia for *euro*767m in cash early next year. Neither company will comment on the option, but it is clearly in Axel Springer's interests to exercise it.

Although Mr Kirch himself has a 40% stake in Axel Springer through KirchBeteiligungs, the Springer family has voting control. So although Kirch may be able to negotiate some flexibility on the timing of the payment, KirchMedia still has to find the cash. The most obvious source would be a sale of new shares in KirchMedia—if investors can be persuaded to buy any.

A further cause for concern is KirchMedia's trading relationship with other parts of the empire. KirchMedia has long-term contracts with most of the big Hollywood studios for free-TV and pay-TV rights in Germany. Last year, almost one-third of its revenue from these rights came from one of its corporate cousins, KirchPayTV, which buys from it the pay-TV element of the rights. In March, KirchPayTV was weighed down with some *euro*3.6 billion of future commitments under long-term film and programming contracts; most of this sum was owed to KirchMedia. Were KirchPayTV to default, KirchMedia would have to pick up the tab. So investors in KirchMedia would want also to be satisfied about the solvency of KirchPayTV.

They would not find it reassuring that KirchPayTV, which sells its services under the Premiere World name, is the biggest cash-guzzler in Mr Kirch's empire. BSkyB, part-owned by Rupert Murdoch's News Corporation, and others invested *euro*2.5 billion in this operation last year. This money has already been spent paying off debts and financing massive trading losses, which have amounted to at least *euro*2 billion since the start of 1999. In June, the subscriber base stood at 2.4m, only 200,000 up on the previous year. One reason why growth has been slow is that pay-TV is something of a luxury in Germany, since around 90% of households receive 30 analogue channels via cable or satellite.

KirchPayTV will probably need more cash next year. At the end of 1999, it had credit facilities of *euro*1.5 billion, but these expired at the end of last year. In July, BSkyB disclosed that KirchPayTV needed more money and that, if banks declined to provide it, a shareholder (ie, other than BSkyB) had agreed to provide a temporary loan until June next year. Kirch will not comment on any aspect of its relationship with its bankers.

Sadly, KirchPayTV, like ProSiebenSat.1, has a big shareholder with a put option. When it bought its 22% stake in KirchPayTV, BSkyB negotiated an option to sell the stake back to KirchHolding for *euro*1.8 billion if there was no flotation of KirchPayTV by October 1st next year. Mr Murdoch recently said that BSkyB intended to exercise the option. BSkyB then appeared to cast doubt on KirchHolding's ability to pay by warning that “there is no certainty the resources of KirchHolding will be sufficient to satisfy the put option if exercised.”

Where will Mr Kirch find the *euro*1.8 billion—way in excess of the stake's estimated current worth—if BSkyB exercises its option? The only assets of KirchHolding are its stakes in KirchMedia, KirchPayTV and KirchBeteiligungs. The most marketable asset belonging to KirchBeteiligungs is its 40% stake in Axel Springer, currently worth about *euro*800m, but this is pledged to Deutsche Bank, against a *euro*660m loan, and to some other banks. That leaves a sale of part of KirchHolding's shares in KirchMedia as the most plausible source of cash.

All this still leaves the question of the future of KirchPayTV itself. This operation is thought to be losing upwards of *euro*200m a quarter. Although Kirch has not been successful in selling Premiere World direct to consumers, its large library of film and sports pay-TV rights contains content that rival pay-TV operators in Germany need. So deals to sell this on a wholesale basis to Germany's new cable operators may be part of the solution.

The cable industry, which delivers television content to some 55% of German households, is undergoing radical change. Regulators have forced Deutsche Telekom, the former telecoms monopoly, to sell its sprawling cable assets this year. Liberty Media, led by John Malone, a pioneer of cable TV in America, has agreed to buy a large chunk of these. If this deal and another are approved, Liberty will have direct and indirect access to around 30% of German households.

That could be bad news for Kirch. Mr Malone has upset Kirch and other German broadcasters by rejecting their technical standard for future digital set-top boxes. He favours his own standard, which Kirch suspects is designed to give him an exclusive relationship with consumers. If Mr Malone can drive a wedge between Kirch's content and the end-user, he may also be able to force Kirch to sell him that content at a reduced wholesale price, rather than at a premium price to households. Unlike Kirch, Mr

Malone has plenty of cash, so he could subsidise his set-top boxes.

Car trouble

As if the problems of KirchPayTV were not enough, there is also Kirch's investment earlier this year in SLEC Holdings, a group of companies that holds commercial rights to Formula One (F1) motor racing. This is beset with difficulties. Kirch's 58.3% stake in SLEC, acquired through KirchBeteiligungs, cost $1.78 billion, $1.54 billion of which was borrowed. But Mr Kirch cannot lay his hands on his share of F1's cashflow, and thus service his borrowings, until SLEC has repaid the remaining $1 billion of a $1.4 billion bond issued in May 1999. This may not happen until 2005. The debt also restricts capital spending, which hobbles Kirch's ambitious plans to develop the F1 business.

Kirch is negotiating with several banks to replace this debt with a more flexible loan ahead of the flotation of KirchMedia. But Dresdner Bank's calling-in of its loan last week has made this task more difficult. However, SLEC spews cash (it made a pre-tax profit of about $240m this season), so it should be attractive to bankers.

Kirch intends to transfer to KirchMedia some of the debt it took on to buy its SLEC stake. However, KirchMedia is not robust enough to shoulder anything like all of Kirch's F1 debt. Once again, this leaves a successful stockmarket flotation of KirchMedia as the only plausible way of repaying the debt—short of an outright sale of the SLEC stake.

Nor is this the end of Mr Kirch's motor-racing problems. In November, a consortium of car makers involved in F1 announced that they will pull out and set up a rival motor-racing series in 2008—once the present agreement governing the teams' relationship with SLEC expires. This announcement casts doubt over the future of the F1 series after 2008 and over the value of Kirch's F1 stake. The consortium, which comprises BMW, DaimlerChrysler, Fiat, Ford and Renault, backs five of the 12 F1 teams.

If the new series were to go ahead, the F1 brand would be of little value, as SLEC's cashflow would quickly dry up. To avert a breakaway, however, Mr Kirch would have to accede to the car makers' demands. This would mean surrendering, after 2007, a large part of the cashflow that SLEC now enjoys. There seems little chance of resolving the uncertainty over F1 before KirchMedia is listed.

Too well-connected to fail?

In all his troubles, Mr Kirch does at least have a few powerful friends he can rely on. For over 40 years he has been close to Bavaria's ruling party, the Christian Social Union, and he has the ear of Edmund Stoiber, the state's prime minister. Bayerische Landesbank, which is half-owned by the Bavarian state, has long been an avid supporter of Mr Kirch. It is his largest bank lender, with outstanding loans believed to be close to *euro*2 billion.

Mr Stoiber is a possible challenger to Gerhard Schröder for Germany's chancellorship in next year's elections. The last thing he wants is for one of Bavaria's biggest companies to go bust, or for Bayerische Landesbank to suffer enormous losses as a result of its exposure to Kirch. So Mr Kirch's Bavarian bankers are likely to be encouraged to be patient.

There is, however, no shortage of people ready to exploit Kirch's woes, among them Messrs Murdoch and Malone. They see the chance to pick up some media assets on the cheap—and, if rumours are to be believed, they have been trying to encourage banks to call in more Kirch loans. For Mr Kirch, survival is likely to come at a high price. To raise the money he desperately needs, he may have to sell so much of KirchMedia next year that he loses control of his empire's most visible asset.

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Vivendi

Veni vidi Vivendi

Dec 20th 2001
From The Economist print edition

Jean-Marie Messier's unpredictable shopping habits are now a little clearer

AP

Springer's now in French hands

IF THERE is one question that has been baffling New York's media types recently, it is this: what is Jean-Marie Messier up to? This week the French boss of Vivendi Universal, the media group he has built out of a 148-year-old water and waste-treatment utility, came close to giving an answer. In the latest round of his breathless American acquisition spree, unveiled only a year after he snapped up Universal Studios and Universal Music Group for $34 billion, he is adding the entertainment assets of USA Networks, in a deal worth about $10.3 billion, and a 10% stake in EchoStar, America's second-biggest satellite-TV operator. Together, declared Mr Messier, these deals create “a new US major, a tier-one player”.

The logic behind this pre-Christmas shopping binge is clear. Since he branched away from his group's unglamorous roots, Mr Messier's ambitions to create an integrated global media company have had one gaping hole: the means of distributing his entertainment content in America. In Europe, Vivendi owns Canal Plus, the leading pay-TV operation. The group has also bet heavily on delivery through wireless devices and the Internet—though its online businesses have been running an operating loss, which reached *euro*103m ($93m) in the first half of 2001. But Vivendi had no distribution to speak of in America.

Now, thanks to Vivendi's $1.5 billion investment, EchoStar has agreed to carry at least five new channels created by the French group. That means that Vivendi can pump into American living rooms lots of new content developed from its film and music libraries. To that end, Mr Messier has created Vivendi Universal Entertainment, to be run by Barry Diller, the boss of USA Networks, one-time head of the Paramount film studio and the man hired by Rupert Murdoch to create Fox television. Mr Diller will run all the entertainment bits of Vivendi, except music, plus those of his former company, including the USA and SCI-FI television channels and its film and television-production units, responsible for such diverse output as the arty film “Traffic” and the decidedly non-arty “Jerry Springer Show”.

Mr Messier insisted this week that his two latest deals plug his American gap, and equip his group to rival the likes of AOL Time Warner. Moreover, Vivendi brings to EchoStar the technology devised by Canal Plus for its set-top box in Europe, where it has pioneered interactive TV.

Yet two concerns remain. First, these deals do not resolve all of Vivendi's distribution problems. For one thing, the USA Networks channels must renew their own carriage deals with pay-TV operators. For another, were the regulators to block EchoStar's recent purchase of DirecTV, another satellite-TV operator, Vivendi would be hooked up to an operation that reaches only 7% of American households. And Vivendi still has no broadcast network.

The second concern is about the clarity of Mr Messier's vision. Earlier this year, outsiders worried about his lack of American distribution. He bought, instead, an American educational publisher, Houghton Mifflin, for $2.2 billion. Outsiders kept muttering that he needed American distribution. He talked instead about “multi-channel communication” and Vizzavi, his Internet portal, and he denied the need for an American distribution asset. Now he has at last bought one. Nobody could accuse Mr Messier of lacking opportunism or ambition. But this French ex-bureaucrat, and the famously prickly Hollywood veteran he has persuaded to help him, must now prove they can make it all work.

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Bluetooth

Teething trouble

Dec 20th 2001
From The Economist print edition

Reports of the death of Bluetooth, a wireless-data standard, are premature

WHATEVER happened to Bluetooth? This wireless-data standard, named after a tenth-century Danish king, was supposed to allow mobile phones, handheld computers and other devices to communicate over short distances by radio. It would enable laptop computers to surf the Internet via a nearby mobile phone; it would allow commuters to download travel information into their phones; and it would allow handheld devices to talk to nearby printers, without the need for cables. In short, it would make lots of wonderful things possible, so long as devices had a Bluetooth chip installed.

Meanwhile, out in the real world, another wireless standard, called 802.11b or Wi-Fi, was getting all the attention. Wi-Fi-equipped laptops within range of a base station can access the web at high speeds. Unlike Bluetooth, which was hyped by its backers, Wi-Fi took off on its own. Wi-Fi has won, and "Bluetooth is in full retreat", said Sean Maloney of Intel this summer.

Microsoft's decision to include support for Wi-Fi, but not for Bluetooth, in its Windows XP operating system seemed to confirm that Bluetooth was struggling. In a survey of 120 large firms by Frost & Sullivan, a consultancy, only three were found to be evaluating Bluetooth. More embarrassing still, an attempt to provide Bluetooth coverage at a trade show in Hanover earlier this year flopped—the equipment didn't work. Sceptics now say that, at best, Bluetooth will be relegated to a minor role as a "cable replacement" technology.

Yet Bluetooth's backers tell a different story. The original version, Bluetooth 1.0, launched in 1998, had a number of bugs that stopped devices from different manufacturers working together (hence the fiasco in Hanover). Version 1.1, launched in March, solves this problem. It came too late for inclusion in Windows XP, but Microsoft recently announced that it will add Bluetooth support next year. As for the comparison with Wi-Fi, it is rather unfair, since Bluetooth is designed for low-powered, short-range communication between handheld devices, whereas Wi-Fi is a full-blown wireless Internet protocol for portable computers.

Bluetooth believers are stung by unfavourable comparisons with Wi-Fi, and have been fighting back. A recent report from Cahners In-Stat, a market research firm, estimates that 13.4m Bluetooth chips will be sold in 2001, twice as many as Wi-Fi chips. But lots of chips shipped does not mean lots of Bluetooth-enabled devices in the shops. Michael Wall of Frost & Sullivan estimates that only 1.2m such devices will be sold this year. As for all the other Bluetooth chips, many were not Bluetooth-1.1-compliant.

So is Bluetooth dying, or is it at last poised for take-off? The truth lies somewhere in between. Bluetooth's most fervent supporters, notably Ericsson, which pioneered the technology, originally had thought of lots of clever ways to use it. So far, however, Bluetooth is employed only as a replacement for cables. But, says Alan Woolhouse of Cambridge Silicon Radio, a firm that designs Bluetooth chips, more exotic applications "will be developed once critical mass arrives, and that critical mass will be delivered by cable-replacement uses." In other words, Bluetooth must start off boring if it is to become sexy in future.

It will also have to get cheaper. At the moment, it costs $20-30 to add Bluetooth to a phone or computer. Only when economies of scale bring the price down to $5, says Mr Wall, will things really get going. Once they do, growth could be spectacular: Cahners In-Stat predicts that sales of Bluetooth chips will reach 780m by 2005.

If Bluetooth does achieve critical mass, there is no shortage of ideas about how to make use of it: as a wireless payment mechanism in shops, as a replacement for keycards to open doors, as an electronic

travel pass, and so on. Doing these kinds of things over the Internet with Wi-Fi, or even via text messages, would be far more complicated and expensive. In short, there still seems to be a role for a low-powered, short-range wireless standard. And in this niche, Bluetooth may yet prevail.

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Biotechnology

Coming of age

Dec 20th 2001
From The Economist print edition

Biotech firms are no longer mere fodder for the pharmaceutical giants

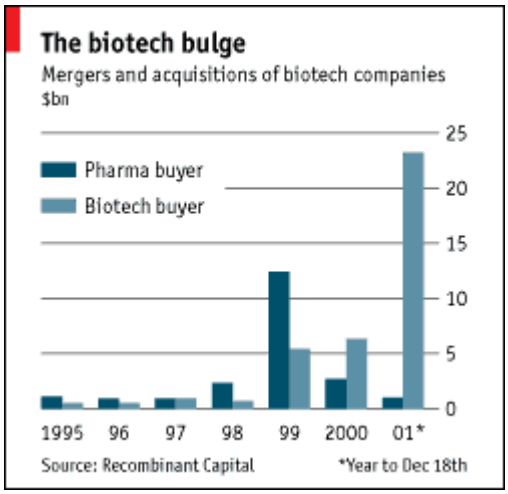
AMGEN, the world's biggest biotechnology company, made its fortune from a drug that fortifies the blood of patients who are undergoing dialysis. On December 17th, the California company acquired some new blood of its own with the purchase of Immunex, a Seattle-based biotechnology company, for $16 billion.

This deal, a biotech-industry record, gives Amgen a firm footing in the multibillion-dollar market in inflammation control. Immunex's most lucrative product is Enbrel, a treatment for rheumatoid arthritis. Amgen hopes to triple the drug's sales to more than $3 billion by 2005, widening its use to other diseases, such as psoriasis, and overcoming manufacturing constraints that have kept the drug in short supply.

With this takeover, Immunex passes from one parent to another. American Home Products (AHP) holds 41% of the shares, and has given the firm sales and marketing support. But AHP has been selling down its stake since last year, in part to finance a $3.8 billion settlement of claims against its diet drugs.

Although Amgen calls itself a biotech company, its market capitalisation of around $62 billion makes it larger than Pharmacia and several other well-known mainstream drug companies, traditionally considered the big brothers of biotech. But Amgen likes to think of itself as less bureaucratic and more entrepreneurial than its pharmaceutical brethren, and it is free of such big-pharma woes as imminent patent expiry. However, as Joseph Dougherty, a biotech analyst at Lehman Brothers, points out, Amgen will find it hard to retain the freedom of its nimble youth as it strives to expand its sales by more than 30% a year.

Historically, pharmaceutical companies have used their deep pockets to buy biotech companies. Now, increasingly, biotech companies are buying each other (see chart). Such industry consolidation is driven by strategy rather than desperation, according to Scott Morrison, a consultant with Ernst & Young. Companies are pooling their resources to build scale in research and development, and in sales, or to fill holes in their product pipelines, as Amgen has just done. With almost 1,400 biotech companies in America, and a comparable number in Europe, there is plenty of room for more togetherness.



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Japanese tourists stay home

When Hawaii's loss is Tokyo's gain

Dec 20th 2001 | TOKYO
From The Economist print edition

Japanese retailers are benefiting from the cancellation of foreign holidays

AP

Sure beats going abroad

IT MAY not officially celebrate Christmas, but that has never stopped Japan's retailers from cashing in on the western holiday. On Christmas eve, stores flog thousands of “Christmas cakes” to workers on their way home. But something strange is happening this year. Instead of the usual rush just before Christmas, orders for the most expensive cakes—generally not an easy sell—have poured in weeks earlier than usual. At Matsuya, a popular Tokyo department store, cakes costing ¥10,000 ($80) started selling out in the first week of December. Part of the reason, say some retailers, is that since September 11th lots of would-be Japanese tourists have decided to stay home. They are using money saved by not travelling to treat themselves to something nice.

Thanks to all those cancelled trips, they have quite a bit of extra cash to spend. According to Japan Travel Bureau, the biggest travel agency, the number of people planning to go abroad for the new year holiday has dropped by a third this year, saving them ¥42 billion. The money squirrelled away for that Louis Vuitton bag in Paris or MAC lipstick in Hawaii is also going spare. Japan's gloomy economic outlook means that some of this will be put away for a rainy day, so it will not stem the steady decline in consumption. Still, people seem to want to splurge on something to make up for their lost jaunts.

The local luxury-goods market has been one beneficiary. Although brand-name products cost nearly twice as much at home as they do abroad, Japanese women are shopping as if they were in their favourite overseas haunts—a trend that has been dubbed *tsumori*, or “as if”, consumption. Foreign-brand cosmetics, normally a popular purchase at duty-free stores, are doing especially well, with sales at Isetan, a big department store, showing double-digit growth year-on-year in the first two weeks of December.

Housewives, who had been looking forward to a holiday from cooking, are also heading to department stores to buy lavish readymade *osechi ryori*, traditional dishes that are eaten during the first three days of the year. This means that they can avoid the laborious preparations that these dishes normally require. Stores say orders for *osechi ryori* are up to 60% higher than in previous years.

The hunt for new holiday destinations has also helped some Japanese hotels and resorts. Tokyo's prestigious Imperial Hotel says that high-end new-year room deals have sold out weeks earlier than usual. Hotels around Tokyo Disneyland and its sister theme-park, DisneySea, which opened in September, are attracting more customers, as are ski resorts across Japan. Retailers and hotel managers have often wondered what it would be like if Japanese tourists spent a fraction of what they do abroad at home. They are at last finding out.

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Aviation

Losing altitude

Dec 20th 2001
From The Economist print edition

September 11th's effects move down the supply-chain

Get article background

THE aviation industry is facing the prospect that its recession, aggravated by September's terrorist attacks, could drag on for three years. In November, domestic traffic for the main American carriers was down by more than a fifth on the previous year. Transatlantic travel has collapsed almost in half for some carriers, such as American Airlines. This week American received a further blow when America's Justice Department recommended that it and its European partner, British Airways, should cede up to 126 slots a week at London Heathrow as the price for letting them pool their transatlantic flights. Both airlines suggested that the price was too high.

The bad news has now also gripped the two big aircraft makers: America's Boeing and Airbus, which is part of the European Aeronautic Defence and Space Company (EADS). Both manufacturers are lowering their delivery forecasts. Yet EADS's share price has been buoyed by hopes of a huge contract for military transporters, apparently offsetting the decline in civil orders. Although the deal for 196 A400(M) aircraft, worth *euro*18 billion ($16.3 billion), was signed on December 18th, it is still unclear whether Germany has the budget for the 73 aircraft it has ordered. Without this order, the whole project could unravel.

Bearish forecasters see deliveries of big civil jets falling by half from a peak of over 900 a year at the top of the cycle in 1999. Boeing relies on civil sales for only 60% of its total, whereas civil aircraft account for 80% of EADS's sales and almost all its profits. Both manufacturers are coy about forecasts. Boeing says it will deliver 350-400 aircraft next year, down from 522 this year, while 2003 will be “lower”. Airbus now admits that production next year could slip from the 300 units it forecast only a few weeks ago, having already abandoned its target of 450 a year by 2003.

The aircraft makers are keeping a particularly close eye on leasing companies, which are quick to cancel orders once it becomes clear that they cannot find customers for the aircraft they have bought. About 80% of the 1,129 outstanding orders by lessors for Boeing and Airbus planes are yet to be signed up by airlines. Leasing-company cancellations could do great damage to both manufacturers' order books. With nearly 2,000 aircraft (11% of the world fleet) parked in the Arizona desert, the outlook for new aircraft is bleak.

The timing of this slump is particularly bad for Airbus and its parent, EADS. Airbus will be building expensive prototypes of its 550-seater super-jumbo, the A380, by 2003. The *euro*1 billion that this will cost to develop annually could mean that EADS makes next to no profit in 2003 and 2004, unless it postpones its A380 spending, according to Chris Avery, an aerospace analyst at J.P. Morgan. He suspects that Airbus may try to persuade the airlines that between them have ordered 97 A380s to agree to a two-year slippage in the programme, which is due to put the first A380 into service in 2006.

As if all this were not enough, there is concern at EADS's twin head offices in Paris and Munich that the company's odd management structure could leave it vulnerable in a crisis. As well as two head offices, the company has two chairmen and two chief executives, one German and one French. On top of the cross-border tensions that such a set-up inevitably creates, there is also friction between the bosses of Airbus and EADS, given that Airbus dominates the business, but is technically EADS's corporate daughter. One insider likens the situation to the internal war in Daimler-Benz—whose DASA division was a founding member of EADS—five years ago. Mercedes-Benz managers came into conflict with Jürgen Schrempp when he became chief executive of its parent, 80% of whose sales were produced by Mercedes. That scuffle ended with the departure of the boss of Mercedes. Could something similar happen with Airbus?

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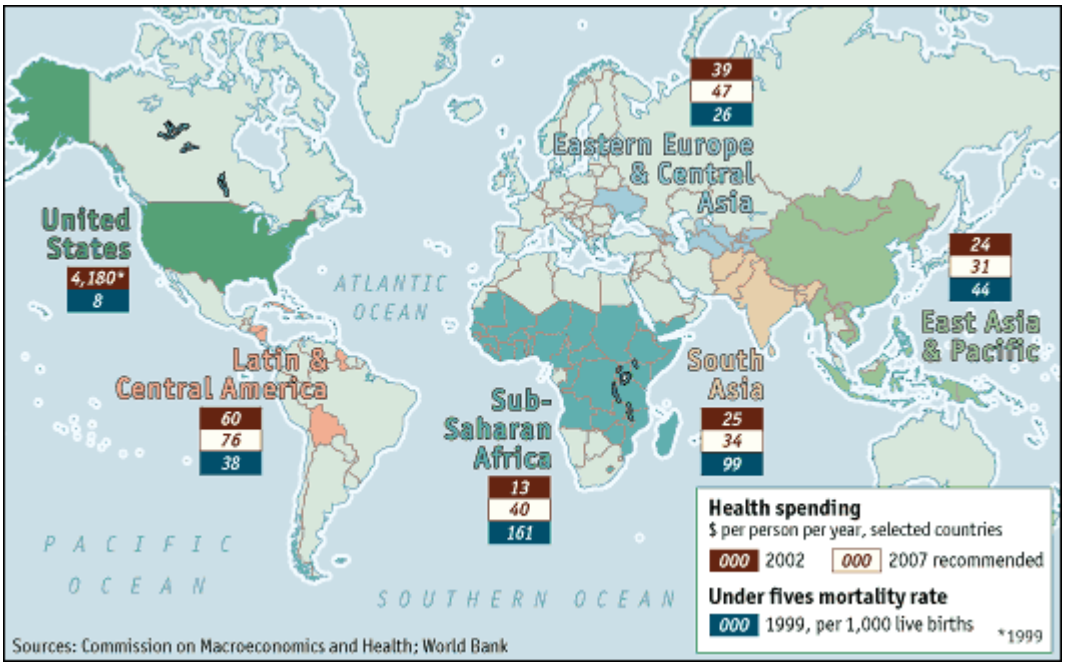
International aid

The health of nations

Dec 20th 2001
From The Economist print edition

Will a new report persuade rich countries to spend another $27 billion a year on other people's health?

SAVING 8m souls a year from untimely death is surely a good idea. And it would require rich countries to spend only another $27 billion a year, or 0.1% of GDP, according to a report that has just been published. But this depends on poor countries spending even more, $35 billion, to the same end. The reward, apart from that warm feeling inside, would be an economic benefit to the world worth $186 billion a year. Pie in the sky, or sound investment advice? The report combines guesswork with some hard numbers.



For decades, public-health experts have been trying to calibrate the precise equation between poverty and ill health. More recently, high-profile politicians in rich countries have called for a concerted effort against such international scourges as AIDS and malaria, and have signed up to such laudable initiatives as last year's Millennium Development Goals to reduce child mortality by two-thirds within 15 years. But how to achieve this on a global scale—and how much it might cost—has been left rather vague.

On December 20th, a grand plan to get the job done was presented by the Commission on Macroeconomics and Health. This commission was set up two years ago by Gro Harlem Brundtland, head of the World Health Organisation, to bring together more than 100 economists, financiers and public-health specialists to work out how, and at what cost, to deliver essential medical goods and services to the 2.5 billion people who go without today.

They conclude that it will take annual investment of some $163 billion in health care by 2007. That would buy key medical goods such as insecticide-treated bed-nets for malaria; and create “close-to-client” networks of health centres and community services across countries.

This target amounts to an average of $38 a head in low- and middle-income countries. At the moment the world's neediest countries, especially those in sub-Saharan Africa, spend less than $13 a head on

health care. The commission reckons that the difference between present health spending in these countries and the desired amount is $57 billion. Roughly $35 billion of that could be mustered by poor-country governments committing an additional 1% of GDP to health by 2007 and redirecting existing resources towards the neediest. But the rest—$22 billion plus $5 billion for such extras as research—would have to come from other sources, namely the rich world.

Although $27 billion is only 0.1% of the collective GDP of the world's main donors—America, Europe and Japan—it is a big sum when set against total net aid flows from rich to poor countries of some $54 billion a year. For all their fine speeches about the importance of investing in the developing world, only five donor governments meet the international target of 0.7% of GDP spent annually on official development assistance.

But as Jeffrey Sachs, a Harvard economist and head of the commission, points out, investing in poor-country health is more than just a nice gesture. Although the idea that poverty leads to ill health has long been accepted, economists have only recently begun to show that disease leads to poverty. This commonsense notion has been remarkably hard to prove at either the national or the household level.

There are obvious costs to ill health, since sick people spend less time at work and more money on medical treatment. Companies are affected by low labour productivity, high staff turnover and nervous foreign investors. And there are more subtle effects too: societies with high child mortality also tend to have higher birth rates, which means that poor families spend less on the health and education of each child, whose future productivity is already compromised by early ill health and poor nutrition. According to the commission's rough calculations, the additional investment in health care that it recommends by 2007 could save 8m lives a year by the end of the decade, translating into an economic gain of $186 billion per year.

Clarion call to governments

Those behind the commission hope that such startling figures will move health swiftly up the agenda of finance ministers in rich and poor countries alike. Certainly Dr Brundtland's previous assembly of wise folk, the World Commission on Environment and Development, did much to persuade companies and countries that investing in sustainable development was not just good for the environment, but might yield economic returns too.

Whether this new report will do the same remains to be seen. Donor countries, such as Britain, have welcomed the commission and its clarion call for greater investment in poor-country health, although they are now left with the tricky task of trying to balance this against commitments to education, enterprise capital and other more traditional aid projects. The price tag of $27 billion is seen more as a guide than a hard target (the commission's economists admit to some guesswork in scaling up their costings globally).

Moreover, some poor countries may simply not be ready for a sudden big shift of resources into health. At present, the countries most in need of such investment lack the domestic capacity—be it trained personnel, institutional governance or even public demand—to absorb additional funding at such a rate without simply fuelling inflation, graft and waste. The first big test of the commission's proposals will come in January, with the launch of the Global Fund for AIDS, malaria and tuberculosis. Kofi Annan, the UN secretary-general, initiated the fund at the UN Special Assembly on HIV/AIDS in June, with the aim of raising $7 billion-10 billion a year to spend on prevention and treatment.

So far, the fund has received pledges worth only $1.7 billion, and its critics wonder how fast more will be made. Certainly the economic slowdown has made governments, and companies, look twice at assigning large sums to the war against disease: the new war on terror has America thinking more about al-Qaeda and anthrax than AIDS.

The fund's executive board will include representatives from developing and donor countries, along with industrial and non-governmental organisations. So far, however, it lacks the heavy hitters—such as former American presidents—who might loosen the purse-strings and keep projects on the rails. Hard decisions will have to be made, for example over buying cheap copies of patented anti-HIV drugs, and politics could get in the way. But money well-spent on individual projects could do much to persuade donors that the fund is worth supporting. For all the commission's grand international plan this week, the march towards global health improvement will come in small steps, not in great leaps forward.

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About sponsorship

Auditors

Who fiddled what?

Dec 20th 2001
From The Economist print edition

"Errors of judgment" are piling up at Andersen

Get article background

AUDITING is a dull business. But it is also dangerous, as Andersen, the world's fifth-largest firm of accountants, is finding out. Andersen audited Enron for all 16 years since the company's formation. On top of pure audit, it also sold internal-audit and consulting services. But despite this privileged insight, Andersen did not spot the fact that Enron was publishing incorrect financial statements. For failing to do its job, Andersen now faces the wrath and legal claims of thousands of staff, shareholders and creditors who will lose billions from Enron's collapse.

In November, Enron announced that it would restate all its annual financial statements from 1997 to 2000, resulting in a cumulative profit reduction of $591m and an increase in debt of $628m. The reason, it said, was that it should have added in three off-balance-sheet entities, vehicles used by some companies to acquire more capital without adding debt to their balance sheets.

How could Enron's auditor have missed all of this at the time? Joseph Berardino, Andersen's chief executive, admitted to Congress last week that his firm made an "error of judgment" over one of the vehicles. But most of Enron's restatement, he said, came from a bigger "special purpose" vehicle called Chewco: Enron's management did not provide the information about Chewco that would have led Andersen to insist on its consolidation. He said Andersen warned Enron's audit committee about "possible illegal acts".

Enron is fighting back. It says that it not only discovered and reported the relevant information on Chewco to Andersen, but that Andersen was involved in "real-time" audit procedures on all of its main structured-finance vehicles. If Andersen is found actually to have advised on the design of Enron's off-balance-sheet vehicles, as the company implies, it will find it hard to plead ignorance over their construction.

The Securities and Exchange Commission (SEC) is investigating Andersen's audit work on Enron, and lawsuits have been filed against the firm; doubtless more light will be shed on what happened. But already, some observers are questioning whether Andersen will survive in its present form. This year, the SEC imposed a $7m fine on Andersen for signing the accounts of Waste Management, another Texas firm, knowing that the accounting methods it had used were designed to mislead investors. In the spring, Andersen paid $110m to settle an accounting-fraud lawsuit over auditing work it did for Sunbeam, a Florida consumer-products company that filed for bankruptcy. Given all these cases, it is even possible that the SEC may bar Andersen from taking new audit clients for a time. If plaintiffs are successful, the firm may have to pay out many more millions in compensation.

Mr Berardino's defence, beyond accusing Enron of withholding information, is that the accountancy profession as a whole is at fault, and a few others as well, such as credit-rating agencies and investment bankers. The heads of the other "big-five" accountancy firms joined in: the standard setters are too slow, they said, and failed to produce adequate rules on off-balance-sheet vehicles: the financial reporting model is outdated and there should be firmer regulation and discipline, and improvements to audit effectiveness.

There is truth in this, but it remains to be seen how much change the American accounting profession will accept. At the moment, auditors are supposedly kept honest by a longstanding system of self-regulation, in which big firms conduct "peer reviews" of each others' audit practices. The Public Oversight Board, which monitors the process, lacks independence from the accounting profession, which funds and staffs

it, and has little ability to punish miscreant auditors. Lynn Turner, a former chief accountant of the SEC who is now at Colorado State University, says that America would do well to adopt something like Britain's new, independent system for upholding audit standards.

The large part played by special purpose vehicles in Enron's collapse has spurred the Financial Accounting Standards Board (FASB) to revisit its rules on how to account for them. Up to now, the FASB has been chary of using the notion of control, rather than ownership, to decide on consolidation, because of its subjectiveness. That, some say, has led to a too-lenient standard. Andersen did not follow the existing rules anyway, says the FASB, which in the case of Enron's off-balance-sheet entities required consolidation.

Will auditors blow the whistle on future Enrons? The big firms argue that every recession throws up a number of corporate failures and tales of auditing mistakes: they simply pay up and wait for the next. The sheer scale of Enron's demise, though, is likely to demand some meaningful change. Last year, the oversight board's panel on audit effectiveness made some simple suggestions. It said that auditors should use forensic methods. Audit thoroughness, as well as fee generation, should feature in deciding pay and promotion. It should be the audit committee, not management, that decides whether an auditor should be allowed to carry out non-audit work over a certain value.

The worst outcome of the Enron affair, for accounting firms, would be that regulators ban them from selling consulting services to those they audit. Big firms worry that if they were left with audit alone, which for most people is a tedious task, their ability to recruit talented staff would evaporate—and they might as well hand the job to a government agency. Better audits would be the best way to assure regulators that such a ban is unnecessary.

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South Korean equities

Options ahoy

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Why investors like Korean blue chips

DESPITE the world economic downturn, South Korea's stockmarket has this year outperformed those of all other countries bar Russia. Its composite stock price index (Kospi) has risen by more than 25% since January 1st. The rally, which has been driven by foreign buying, is expected to continue next year, for two reasons: encouraging economic fundamentals, and the introduction of derivatives so beloved of the world's hedge funds.

On January 28th next year the Korea Stock Exchange is due to introduce option contracts on the shares of seven listed companies: SK Telecom, Korea Electric Power, Korea Telecom, Samsung Electronics, Hyundai Motor, Pohang Iron & Steel and Kookmin Bank. And as early as July, the Financial Supervisory Commission is expected to allow investment banks to sell over-the-counter derivatives, such as equity or interest-rate swaps.

Trading volume on the exchange will increase accordingly, says Lee Wonki at Merrill Lynch. Foreigners hold nearly 90 trillion won ($70 billion) of Korean shares, 37% of the market. Their slice of the trading of Kospi 200 index futures and options rose to 10% this year, from about 5% a year ago. But the Kospi index, covering 200 companies, is not the best way to hedge foreign portfolios, which are invested mainly in the seven blue-chip shares. Yet derivatives alone will not sustain Korean equities unless the economy turns around. There are signs that it has reached bottom, with real GDP estimated to have grown by at least 2.8% this year (slower than last year but higher than earlier forecasts of 2% or less). Jin Nyum, the finance minister, predicts that, although exports may suffer next year if the Japanese yen continues to fall, domestic demand and public spending will help real GDP to grow near to the country's full potential of 5%.

Some analysts argue that the recent market rise has been caused by investors' blind faith in bank and technology shares. The latter rallied last month, but then hesitated as Micron, an American memory-chip maker, blew hot and cold on taking a stake in or allying with Hynix, Korea's debt-laden maker of memory chips.

Nevertheless, the rally is likely to continue, says Koh Wonjong, of SG Securities in Seoul. That is because South Korea's industries are more diversified—into information technology, cars, shipbuilding, steel and services—than those of other Asian countries. In Taiwan, telecoms, media and technology shares account for 80% of the market.

The restructuring of some big companies, such as Hynix and Daewoo Motor, remains incomplete, as does bank reform. But the past four years of financial and corporate change may soon pay off. For many companies, balance-sheet problems have turned into the need to measure profits, a far more welcome task.

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Economists on film

Keynes the movie?

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At last economics is sexy

THE season's cinematic blockbusters all have product tie-ins. Burger King offers “Lord of the Rings” light-up goblets and “Ring of Power” toys. Coca-Cola brings you a “Harry Potter” literacy programme. As for “A Beautiful Mind”, a film just released with Russell Crowe tipped for another Oscar for his portrayal of a schizophrenic Nobel prize-winning economist, there is “The Essential John Nash”, hot off Princeton University Press for $29.95.

This book is stuffed with long equations and academic papers such as “The Imbedding Problem for Riemannian Manifolds”—not, we can be sure, the sort of imbedding usually associated with the hunky Mr Crowe. The Hollywood version, the first film ever made about a top economist, does not dwell on the brilliance of Mr Nash's insights into game theory, either. However, if filmgoers develop a taste for dismal scientists, rather than for their science, here are two more suggestions:

•**John Maynard Keynes**. Forget about “The General Theory of Employment, Interest and Money”; surely Merchant Ivory could do wonders with this member of the Bloomsbury group, political activist and prolific bisexual?

•**Joseph Schumpeter**. He said he wanted to be the world's “greatest horseman, greatest lover and greatest economist”, and later claimed two of three—he and horses just didn't get along. A perfect role, surely, for Tom Cruise, who was first choice to play Mr Nash. Schumpeter's best-known theory even sounds like a Hollywood thriller: “Creative Destruction”. Now how would they merchandise that?

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The Star of Bethlehem

A sign of the times?

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There are many theories about what it was that foretold the birth of Christ. Here's another

“TWINKLE, twinkle, little star. How I wonder what you are.” So goes the old nursery rhyme. But maybe the modern version should read, “Twinkle, twinkle, little star. How I wonder what you were.” Not just because we don't see stars as they are, only as they were when their distant twinkle first set out to reach our eyes, but also because one great star-mystery revolves around where they were at the time when Christ was born.

The mystery begins with the Gospel according to St Matthew, and the story of the wise men led from the east. “And lo, the star, which they saw in the east, went before them, till it came and stood over where the young child was.”

Astronomers, astrologers and Christians have long speculated about what this perambulating star might have been. None of the other gospels mentions it, yet few aspects of the Nativity have excited so much interest as this brief reference by Matthew. The latest theory comes from Sir Patrick Moore, Britain's most venerable astronomer, whose book “The Star of Bethlehem” was published in September 2001 by Canopus Publishing—yes, also the name of the second-brightest star in the firmament.

Sir Patrick takes a scientific approach to the issue. He considers a number of astronomical options—a conjunction of planets, a supernova and a comet, among others—and then plumps for the one that he thinks best fits the circumstances. Most probably, he thinks, it was a couple of meteors—so called “shooting stars”, nothing more than cometary debris streaking its way into our atmosphere. As an explanation for such a portentous mystery, this has to be too mundane.

The great Austrian astronomer Johannes Kepler, the man who showed that planets move round the sun in ellipses, not circles, thought that the Star of Bethlehem was probably a nova or a supernova, a star brilliantly blowing up. He was influenced by observing a spectacular one himself in 1604.

Jupiter, maybe?

Since Kepler, interest in the Star of Bethlehem has waxed and waned, a bit like a supernova itself. It has, however, been intensifying in recent years. Two books appeared just before Sir Patrick's, presenting contrary views. In “The Star of Bethlehem: An Astronomer's View” (Princeton University Press, 1999), Mark Kidger, a British astrophysicist, supports the nova theory. But he thinks that it was not just a nova, but a nova plus a series of planetary get-togethers that led the wise men to Bethlehem all those years

ago. In particular, he points to a nova that occurred in the constellation of Aquila in 5 BC, and a couple of unusual planetary conjunctions that took place in 6 and 7 BC.

Mr Kidger's book was followed by “The Star of Bethlehem: The Legacy of the Magi” (Rutgers University Press, 1999), written by an American astronomer, Michael Molnar. Mr Molnar takes a different tack, arguing that it was not an astronomical event that guided the wise men on their journey, but an astrological one. He may not have the best theory, but he certainly has the best story.

In 1990 he bought an ancient Roman coin on which was depicted a ram looking over its shoulder at a star. Significantly, the ram is the symbol of Aries, one of the constellations of the zodiac—the zodiac being the “belt” of constellations through which the planets move. Astrologers read great human significance into the positions of the planets and the sun vis-à-vis the various constellations of the zodiac, particularly at the moment of a person's birth.

Mr Molnar, realising that Aries (the astrological sign for the period between March 21st and April 20th) was traditionally a sign of special significance for the Jews, then discovered that Jupiter, the planet of kings, was undergoing a lunar eclipse on April 17th in the year 6 BC, precisely at a time when it was “in the east”. Eureka! Any really wise man seeing this event at the time would have known that it signified that a king was (or was about to be) born among the Jews.

Sir Patrick scatters an ice-cold shower of meteorites on this theory by pointing out that the eclipse on April 17th 6 BC occurred in daylight, and would not have been visible to any man, no matter how wise. On one thing, though, the speculators all agree. Whatever it was that the three wise men saw in the east, they didn't see it on December 25th in the year zero. Because of some double-counting by subsequent calendar-makers trying to date time from the birth of Christ, Christ was actually born four or five years “Before Christ”. As for his actual birthday, Mr Molnar plumps for April 17th; Sir Patrick favours early February.

Planet power

It is not necessary to believe in astrology to accept that it had a great influence on the lives of the ancients. Even Sir Patrick, the strict scientist, acknowledges that “we must always bear in mind the purely astrological significance of the star, and we must accept that the wise men were astrologers first and foremost”.

Astrology and astronomy have been inextricably intermingled for the greater part of man's time on earth. Astrology before Christ concentrated on the movement of those planets identified at the time (Jupiter, Mars, Mercury, Saturn and Venus), plus the moon and the sun. Together, these made up the seven *stellae errantes* of the Romans, and it was the astronomers' observations of their relationship to the “fixed stars”, fixed, that is, vis-à-vis each other, that provided astrologers with their raw material.

The influential astronomer Claudius Ptolemy, who lived near Alexandria in the second century AD, was also the author of “Tetrabiblos”, a standard astrological text. He was so sure of the underpinnings of astrology that he wrote, “Should Venus be conjoined with Mars, and Jupiter also presents himself, Mars at the same time being under the rays of the sun, women will then mingle in intercourse with servants and persons meaner than themselves, or with aliens or vagabonds.” Beware the next such conjunction of these planets.

Why, if God was in the heavens and controller of the universe, did he not give advance warning of sending his only son to earth?

The Chinese also mixed their astronomy with astrology. Their astronomers observed Halley's comet in 240 BC, and 20 years later the emperor, Shih Huang, ordered all books to be destroyed except those which related to agriculture, medicine and astrology—the only sciences he thought useful to mankind. In all ancient civilisations, it was assumed that terrestrial events had astronomical causes. The Chinese believed that the rising of Arcturus, the fourth-brightest star in the sky, caused spring to burst forth, while the Egyptians thought that the appearance of Sirius, the brightest star in the sky, brought about the annual flooding of the Nile.

Astrology played a big part in the life of the early Arabs too—for instance, in deciding on auspicious days to start new buildings or even new cities. When he set out to construct Baghdad in the middle of the eighth century AD, the Abbasid caliph al-Mansur consulted a Persian astrologer called Nawbakht to find a conjunction of the planets favourable to laying the foundation stone for a new capital.

He then designed Baghdad according to a cosmological plan, with his own celestially-domed palace located, as it were, at the centre of the then known universe. The dome there, as elsewhere in Muslim architecture, represents Homer's “vault of heaven”, the transparent hemisphere that ancient astronomers believed sat over the (flat) earth and through which the stars were viewed.

Even the invention and widespread use of the telescope in the first decade of the 17th century did not radically change man's view of the heavens. Tycho Brahe, a Danish astronomer and a contemporary of both Kepler and Galileo, wrote: “To deny the influence of the stars is to deny the wisdom and providence of God.” And in the early 19th century, Byron could still write:

> For ye are a beauty and a mystery.And create in us such love and reverence from afarThat life, fame, power and fortuneHave named themselves a star.

Down to earth

It is not like that any more. As Peter Lum wrote in “The Stars in Our Heaven”, a fascinating compendium of mythology and fact surrounding man's perception of the stars: “There is no sense of nearness and of the stars' direct participation in human life, such as there once was.” And he was writing in 1932.

Today's astronomers do not even go to observatories, never mind look at the night sky with their naked eyes. They “watch” the sky from remote computers. As this paper's science section commented earlier this year: “The chances of finding an astronomer who knows what a particular star or constellation is called are distressingly low.” Astronomy is all about the theoretical physics of the outer reaches of space. It exists quite outside star-gazing. As for astrology, it is the province of magazines, and widely scorned.

There are certainly countless difficulties with astrology if you take it literally. Its scheme of things was laid down long before (in 1930) man discovered Pluto, a little planet on the outer reaches of the solar system which annoyingly moves well outside the zodiac. And the dates when the sun moves through the constellations do not correspond (as they were meant to) with the dates of the astrological houses. The sun, for example, is in the constellation Aries between April 18th and May 14th, yet the astrological sign Aries covers the period from March 21st to April 20th. It can be argued that Mr Molnar's lunar eclipse in 6 BC occurred while the sun was in Pisces, the constellation of the fishes, not a time of particular significance for the Jews.

Despite these difficulties, however, astrology is invaluable as a tool for helping us to understand how our ancestors perceived the world, and in particular what Matthew was referring to when he wrote about the Star of Bethlehem. So much so that it, rather than astronomy, should be the starting point for any explanation.

Matthew's dilemma

So imagine this: Matthew is trying to persuade the Jews, several decades after the death of Christ, that Christ was indeed the Messiah, the son of God. The first question that any half-intelligent member of his audience would have asked would have been why, if God was in the heavens and controller of the universe, he did not give advance warning of the fact that he was sending his only son to earth. Everything else on earth, from the tendency of women to mingle with vagabonds to the flooding of great rivers, could be foretold in the stars. Surely the greatest event in man's history, which is what you (Matthew) are telling us the birth of Jesus was, could also have been foretold in the stars? And by something far more significant than an everyday conjunction of Venus with Mars?

“Funny you should ask that,” Matthew would have been forced to reply. And he would have had to search around in his imagination for an astrological answer. Which could explain why only his Gospel tells the story (because only he was asked), and why astronomers ever since have found it so difficult to identify the event he was referring to. Of such yielding to temptation, maybe, are eternal mysteries made. Of course, for anyone who takes everything written in the Old and New Testaments literally, this explanation

of the Star of Bethlehem is not acceptable. For the rest of us, though, it has to be a front-runner.

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Artificial intelligence

2001: a disappointment?

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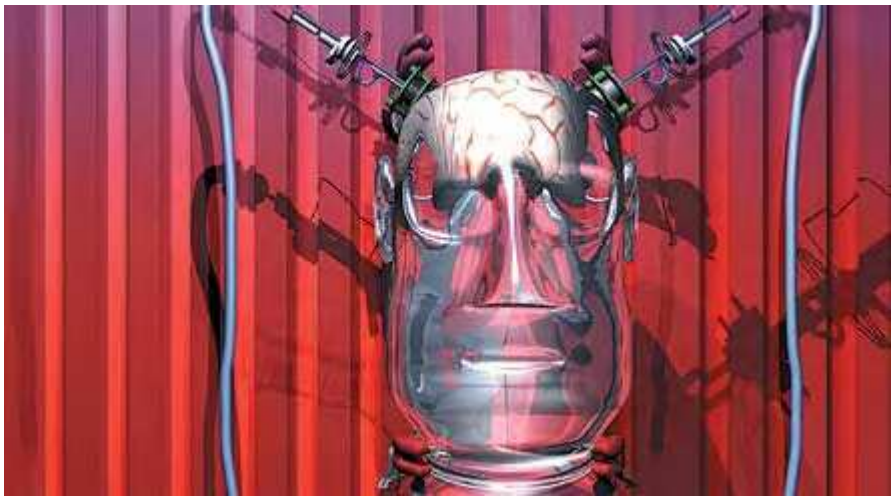

Machines are not as intelligent as Kubrick's film imagined. But they are more life-like than ever

THE scene is prehistoric earth. Strauss's timpani crash out their epic chorus, and the sun rises on the dawn of man: apes, mastering primitive tools for the first time. Cut to 2001. A space station orbits the earth. A human colony inhabits the moon. And an intelligent computer, called Hal, guides a manned expedition to Jupiter. Man has evolved.

Not, though, to the technological heights imagined by Stanley Kubrick in 1968, when he released the movie “2001: A Space Odyssey”. This year, we can now say at the safety of its end, did not bring us a Hal, or anything like it. Computers can play a pretty good game of chess, transliterate speech and recognise handwriting and faces. But their intelligence does not touch our own, and the prevailing scientific wisdom seems to be that it never will. There will be no David, the boy-android of “AI: Artificial Intelligence”, Steven Spielberg's Kubrick-inspired film of last summer. After half a century of frustrations and dead-ends, AI research has become famous not for success, but for failure.

Kubrick, of course, had larger designs than crass futurology. Intellectuals saw his film as a satire about the failure of language. For some souls, it became a religious experience. At a screening in Los Angeles, one member of the audience looked at the weird star-child in mysterious orbit about the earth at the film's end, ran down the aisle and crashed through the screen shouting “It's God! It's God!”

One of Kubrick's clearer preoccupations was the evolution of technology. Humans had evolved, from dawn-of-man apes, and so had technology, from bone clubs to sentient machines. Machines may not yet be intelligent. But they are clearly evolving, and in a way that, more and more, seems intimately related to the evolutionary mechanisms of life.

Our language hints at a connection between life and machines. “Viruses” and “worms” have begun to infect computers, replicate their code and proliferate thousands of digital copies across the World Wide Web, many times faster than any natural pathogen. Computer scientists “breed” programs, not *in vitro* but *in silico*, in virtual laboratories inside their computers. Poorly-performing computer code is killed off. Superior code is spliced with sibling programs and bred again. Computer languages evolve, generation succeeding generation.

Peer more closely, and the intimacy deepens. At its core, safely sheathed inside the protective

metabolising cell, life is an information processor, a spiral double-helix molecule called DNA. DNA is both the self-replicating instructions for life and the computer which carries them out. Watching the fluffy, downy seeds float down from the willow tree at the bottom of his garden inspired this from Richard Dawkins, a British biologist:

> It is raining instructions out there; it's raining programs; it's raining tree-growing, fluff-spreading, algorithms. That is not a metaphor, it is the plain truth. It couldn't be any plainer if it were raining floppy discs.

Biological viruses replicate themselves inside cells, fooling their hosts into lending them the metabolic machinery of life which they themselves lack. Software viruses use the machinery of computers in much the same way, exploiting their ability to copy instructions quickly and at high fidelity. For inspiration in the design of computer “immune systems”, software engineers are increasingly turning to biology.

Life evolves by building on its own complexity. Technology evolves by building on past knowledge. As David Ackley of the University of New Mexico points out*, the evolution of computer technology claims a special kinship with life. Life processes information, and it advances by evolving more powerful information-processing techniques. Evolutionary breakthroughs have come with breakthroughs in life's software.

For inspiration in the design of computer “immune systems”, software engineers are increasingly turning to biology

Life began with direct coding on bare, carbon-chemistry hardware, like amino acids and proteins. Higher programming languages, like DNA and RNA, evolved gradually. Computers began in a similar fashion, with programmers coding on to the bare machinery of their circuits. Higher programming languages have followed, each generation more powerful than the last.

There is, of course, one big difference between biological and machine evolution. It took life billions of years to evolve the information-processing skills that lie behind the evolution of the human brain. Computers have made giant strides in half a century.

Life in silico

Computers sprang from our minds. More than that, they are models of how we think—or thought—that our minds work. Alan Turing, a British mathematician popularly remembered for his wartime code-cracking work on the German Enigma machine, is cherished among geeks for earlier, theoretical work on a “universal computer”. This machine, which laid much of the intellectual groundwork for modern computing, works like a plodding human logician, advancing steadily and discretely, step by deliberate step, until its task is complete.

As the vacuum tubes of the first, serial computers fizzed and crackled for the first time, their designers must have recognised in them a shared kinship. Here were electronic minds, capable of the same deliberate, problem-solving steps that governed their own thoughts. Giant electronic brains were sure to follow. Amid high expectations, the research field of artificial intelligence was born.

By the late 1960s, however, it was dawning on AI scientists that rational thought had its limits. Computer-controlled robots could not even reason themselves from one end of a room to the other. Scientists tried to cut corners, replacing the baffling complexity of the real world with one made only of bare walls, doors and simple geometric shapes. But these defeated the computers too. Shakey, a 1.5m-tall contraption that rattled around the Stanford Research Institute in the early 1970s, did celebrate the odd success. But most of the time, Shakey was floored by his infantile world, unable to keep track of where he was or what he was doing. Shakey was seriously stupid.

Amid disillusion, AI's second age was born. Central, top-down control lost currency. There was no pilot in the cockpit of the brain, directing body and mind. Intelligence was rediscovered as the subtle interaction of many scattered parts. By itself, each part was stupid. Working together, they achieved profound results. A single ant is not God's brightest creature. But as colonies, ants engage in food cultivation, temperature regulation, mass communication (using scent trails) and bloody, organised warfare. Ant colonies run themselves with an efficiency that outstrips human society. But no single *über*-ant manages the show.

Intelligence was rediscovered as the subtle interaction of many scattered parts

Peering into the grey matter of the brain, you discover the same phenomenon at work. There is no Intel inside, a single processing unit cycling through a program called “humanmind.exe”. In its place are 100 billion neurons. By itself, each neuron performs simple, seemingly trivial, calculations. Yet wired together in the obscure wetware of the brain, these neurons somehow give rise to the mind.

All too soon, however, the hopes kindled by AI's second age dimmed as well. Using chips and computer programs, scientists built artificial neural nets that mimicked the information-processing techniques of the brain. Some of these networks could learn to recognise patterns, like words and faces. But the goal of a broader, more comprehensive intelligence remained far out of reach. There was plenty of processing power. By the end of the 20th century, computer speeds were doubling every year, maintaining an exponential rate of growth that began with the appearance of the very first mechanical calculating devices 100 years before. The problem was what to do with it.

The sort of parallel processing that goes on in the brain seemed to need software (or hardware wiring) of impossible complexity. It was not a simple problem of scale. Computer chips, for instance, have achieved great strides in scale. A 1971-vintage Intel chip contained 2,300 transistors. The company's latest products pack in more than 10m. But chips have not become more complex. The basic patterns of wiring, though vastly miniaturised, remain the same.

The problem was rooted instead in the top-down, controlling way in which software was designed to work. Top-down control requires top-down organisation. However, the bigger and the more complicated the task, the more difficult it becomes to organise it from the top, even for relatively simple, human-built systems. Already, for instance, engineers struggle to maintain the software that runs telephone exchanges.

These networks are made up of tens of millions of connections. Each of the brain's 100 billion neurons connects itself to 10,000 others. Inside a single human head are 1,000,000,000,000,000 connections—enough for 100m modern telephone exchanges. The scattered architecture of intelligence would have to run on a new sort of software, working from the bottom up and organising itself, like life does, into greater and greater complexity. The software crisis had arrived.

And so dawned the third age of AI. Its boosters abandoned hopes of designing the information-processing protocols of intelligence, and tried to evolve them instead. No one wrote the program which controls the walking of Aibo, a $1,500 robotic dog made by Sony, the Japanese consumer-electronics giant. Aibo's genetic algorithms were grown—evolved through many generations of ancestral code in a Sony laboratory.

The Cambrian era

On one level, this arc of scientific endeavour describes a journey towards a more sophisticated understanding of the mind. As a young man, the roboticist Hans Moravec worked on the sort of theorem-proving reasoning programs that controlled Shakey. By 1988, Mr Moravec was writing:

> The deliberate process we call reasoning is, I believe, the thinnest veneer of human thought, effective only because it is supported by this much older and much more powerful, though usually unconscious, sensorimotor knowledge. We are all prodigious Olympians in perceptual and motor areas, so good that we make the difficult look easy. Abstract thought, though, is a new trick, perhaps less than 100,000 years old. We have not yet mastered it. It is not all that intrinsically difficult; it just seems so when we do it.

On another level, though, the three ages of AI chart not human progress, but the evolution of the computer itself. First came serial computing and rational thought. At fast enough speeds, serial computers were capable of feats of intellectual brilliance, like playing chess. But they were hopelessly bad at more complex tasks, such as the motor skills we take for granted. Faster central processors (simulating neural networks) and the growth of computer networks (linking many machines together) created the parallel-processing architecture of AI's second age, in which distributed societies of machines crunched numbers together, achieving feats of intelligence beyond simple serial processors. The first flickering signs of digital life that flashed across these networks inspired the third age of AI. Computers were by now looking more recognisably like the stuff of life, and scientists had begun to borrow directly from its book.

There is, of course, nothing to say that computers and computer software

will continue to evolve in ways that replicate the patterns of life. There may be some hidden, basic difference between carbon and silicon that limits (or, alternatively, enhances) the evolutionary potential of machines, damning them forever to patterns of life that are no more exalted than the humble virus. Recent research, however, hints at greater potential.

Thomas Ray, an American biologist, wants to create, in a virtual world of evolving software, the same explosion in complexity that happened during earth's Cambrian age, 570m years ago, when multicellular life made its first appearance. A dummy run in 1990 of Mr Ray's virtual world, called Tierra, produced interesting results.

Mr Ray “seeded” his world with simple, self-replicating software programs. As he watched them evolve, he saw parasites develop—shorter bits of machine code which had found a way to latch on to other programs and borrow their code in order to reproduce. But although the overall ecology had become more complex, the programs themselves had not. On the contrary, Tierra bred shorter, more efficient bits of code.

A second experiment, conducted over networked computers, hopes to make amends. This time, each of Mr Ray's seed programs has both the ability to reproduce and to migrate from computer to computer in search of hospitable habitats. Mr Ray hopes that, in this more complex environment, his programs will evolve more complex behaviour, like migrating around the world to keep to the shadows of night-time.

Early results have been hard to decipher: humans have a hard time making sense of evolved machine code. But Mr Ray thinks that he may have found the first signs of “cell differentiation”, which was the key innovation in the Cambrian age that produced multicellular life. The bits of code that allow Network Tierra programs to migrate began as a single task, or cell. In some evolved programs, this cell has split in two.

Outside the laboratory, meanwhile, computer software continues its relentless evolution. Mr Ackley suspects that this process may, by itself, be drawing closer to some sort of Cambrian explosion in evolutionary potential. Gradually the computer algorithm, a finite set of steps that takes you from A to B, is being replaced by the notion of distributed computing, in which autonomous programs, each designed for a specific task and running on different machines sprinkled around the Internet, combine and interact with each other to perform complex calculations.

Single, monolithic algorithms evolve in the opposite direction to life, from complexity to greater simplicity and efficiency. Distributed computing, on the other hand, seems to capture some of the bottom-up characteristics of life's complex, self-organising software. Computer software may evolve its own solutions to the software crisis, not in the lab, but in the rich ecology of the global economy, across the electronic wilderness of the world's computer networks.

Then, alas, gigadeath

To what end do our computers silently code themselves? Western culture is full of apocalyptic warnings of a clash of rival species. Hugo de Garis, an Australian roboticist, predicts “gigadeath”, our imminent genocide. Less encumbered by Darwinism and its intellectual fellow travellers, eastern culture imagines a more co-operative, symbiotic future with evolving machines: for example, the curvaceous cyborgs of Masamune Shiro's *manga* comic books.

Biological life suggests both futures are possible. Life competes fiercely for the limited resources that allow it to metabolise, and so propagate itself. When it suits self-replication better, however, life also co-operates, in loose alliances or seamless symbiogenesis. On the shores of Brittany, relates Lynn Margulis, an American biologist, can be found a strange sort of seaweed that turns out not to be seaweed at all. Under the lens of the microscope the seaweed becomes green worms. They are green because they are packed with photosynthesising algae, which lives, reproduces and dies inside the body of the worms. Obligingly, they produce the food that the worm “eats”—the worm's mouth is entirely redundant.

The architecture of every cell in the human body—and the body of all plants and animals, for that matter—was made possible by an earlier, symbiogenetic fusing of simpler single-celled creatures.

Bacteria live in the human gut, in eyelashes and other startling places, making us massive, walking colonies of micro-organisms. In the same way, an impartial observer might conclude, humans have become symbiotically intertwined with their machines. Humans work to further the replication of computer code, while computers help to propagate human code, supporting the highly-evolved economic and financial infrastructure that sustains human society. The two are not so intimately related as flatworm and algae. But neither, realistically, can each do without the other.

The emergence of evolved software and hardware that is grown, but not understood, deepens human dependence. Perhaps the physical relationship will deepen as well, with chip implants in brains, or human minds dubbed and downloaded into machines. Alternatively, man and machine might dispense with each other and part ways. The tree of life grows in on itself, says Mrs Margulis, but it branches as well.

Maybe, in the end, humans will never know the larger truth. Hal was alien to his human crew—a red eye, behind which lurked an unfathomable intelligence. Since 1968, the computer has become more alien still. Kubrick had no inkling of the networked computer, with its potential for massively distributed intelligence. Perhaps humans will stay ignorant of the grander design, just as a single ant has no comprehension of the intelligence of the colony. When 2001 really does arrive, we may never know it.

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* "Real Artificial Life: Where We May Be", David Ackley, Department of Computer Science, University of New Mexico

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Chronicles of chronology

The power of seven

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From The Economist print edition

Bridgeman

The week, to which we are all enslaved, has a strange and erotic history

WHY does *The Economist* appear every seventh day? The answer is because we, like you, still regulate our lives by a septimal law that Mesopotamian star-gazers framed, and local warlords imposed, more than 40 centuries ago. Our weekdays and weekends and weeks off, our dress-down Fridays, hectic Saturday nights, Sundays sacred or profane, and Monday-morning blues all have their origin in something that happened around 2350BC. Sargon I, King of Akkad, having conquered Ur and the other cities of Sumeria, then instituted a seven-day week, the first to be recorded.

Ur was probably using weeks, less formally, long before Sargon came marching in. The Sumerians were great innovators in matters of time. It is to them, ultimately, that we owe not only the week but also the 60-minute hour. Such things came easily to people who based their maths not on a decimal system but on a sexagesimal one.

Why were these clever chaps, who went for 60 because it is divisible by 2, 3, 4, 5, 6, 10, 12, 15, 20 and 30, fascinated by stubbornly indivisible seven? In ancient Egypt and ancient China, “weeks” of ten days were long in use—much more understandable, as people have ten fingers to count on, not seven. (And yet you have to wonder, if the Pharaohs' long week was intended to drive their workforce harder, whether it provoked the Exodus?)

To the Sumerians, ultimately, we owe not only the week but also the 60-minute hour

Above all, why should the Sumerian system have not merely endured but become an almost universal conqueror? Ur's posterity now sways regions Sargon never knew. Its lead has been slavishly followed by Babylonians, Greeks, Romans, Hindus ancient and modern, Muslims and most of the present inhabitants of Europe and the Americas. Even China surrendered a good thousand years ago.

The year, the day and (not quite so obviously) the month are natural divisions of time. The week is an oddity. The moon's four phases are a near miss, but still a misfit, for weeks. You will be in trouble (like H.G. Wells's “The Man Who Could Work Miracles”) if you try to make the moon perform every 28 days, instead of its usual 29½ and a bit. The Sumerians had a better reason for their septimalism. They worshipped seven gods whom they could see in the sky. Reverently, they named the days of their week for these seven heavenly bodies.

So do most of us today. Greeks, Slavs, and many Jews and Muslims, although loyal to Ur's seven-day week, have shaken off its planet-gods; but a great majority of Christians and of Hindus, and virtually all “unbelievers”, still pay their respects daily to the Sumerian seven—under changed names, of course.

For the Sumerians themselves, seven was a very special number. They conceived of a seven-branched Tree of Life, and of seven heavens, that were passed to Babylon and symbolised there in seven-tiered ziggurats, or hanging gardens. Sumeria's Gilgamesh epic describes the rite of passage through which Enkidu the ape-man became human, thanks to the obliging Shamhat:

> While the two of them together were making love,He forgot the wild where he was born.For seven days and seven nightsEnkidu was erect and coupled with Shamhat.

In spite of all that, Ur's seventh day was not holy. On the contrary, it represented danger and darkness. It was risky to do anything at such a time. So it became a day of rest.

Ever since the time when Abraham trekked westward from Ur, Mesopotamian influences had helped to form Hebrew traditions. The Jews got the story of the Flood from Sumeria. They got the seven-day-week idea early enough to use it in the account of the Creation given in Genesis. But there may have been some garbling in the transmission. The Sumerians would not have depicted the Creator as just sitting back, satisfied, on the seventh day; to them, he would seem to have stopped work, wisely, because anything attempted on that day must end in tears. The week reached India from Mesopotamia more than 2,000 years ago, in time to get into some of the Hindu scriptures. But the Hindus' creation stories were far more complex than Hebrew ones. They never accepted a Sabbath; their scriptural references to the week, as in the Brahmavaivarta Purana, were almost casual:

> When Brahma had fashioned this universe, he placed his seed in Savitri, his best wife. When she was ready to give birth, she bore the year, the month, the days of the week, the seven Pleiades.

The Hindus were keen sky-watchers and sometimes keen septimalists. They had noted the Pleiades (Krttikas). Noting also the Great Bear's seven stars, they identified them with the Seven Sages who survived the Flood, combined these starry sevens, and made the Pleiades the wives of the Sages. Yet, in their absorbent way, they happily adopted the seven planet-gods who arrived with the original Sumerian week. And, in their retentive way, they held on to them. In modern Hindi, as in ancient Sanskrit, the planets we call Mars and Mercury are Mangal and Budh. The days called Tuesday and Wednesday in English, and *mardi* and *mercredi* in French, are Mangalvar and Budhvar.

Elsewhere, new names have been showered on the old gods and their planets. Yet, to an astonishing extent, they have retained their identities—and kept their places in the order of the days of the week.

Enter Ishtar and Venus

The first recorded change came when the Sumerian week-system was transposed into the Semitic language spoken in the Babylonian empire. The day-names used in Babylon around 700BC (running as if from our Sunday to our Saturday) were: Shamash (Sun), Sin (Moon), Nergal (god of war), Nabu (god of scribes), Marduk (supreme god), Ishtar (goddess of love) and Ninurta (god of farming). They had simply replaced their Sumerian predecessors; for example, Ishtar had succeeded Inanna both as a planet and as the presiding deity of love.

By the time the Romans had adopted the system, the planet-gods wore names more familiar to us: (in the same order) Sol, Luna, Mars, Mercurius, Jupiter, Venus, Saturnus. But their identities remained almost intact. The name-chain Inanna-Ishtar-Astarte-Aphrodite had led to Venus. Nergal lived on in Mars. Aptly, the god of scribes had mutated into the heavenly messenger, Mercurius.

The seven-day system has leapt blithely from one religious base to another, from Ur of the Chaldees to Israel, to Islam

In English and the other Germanic languages, Mars, Mercurius, Jupiter and Venus were, in time, renamed in honour of Teutonic gods. From Tiw, Woden, Thor and Freya came the names of our weekdays from Tuesday to Friday. Even so, the chain remained unbroken. Although English Wednesday and Scandinavian Onsdag salute the god Woden or Odin, this came about only because he was identified with Mercurius. Similarly, the love-goddess Freya took the place of Venus—and her place in the weekly sequence.

Among Europe's Romance and Celtic languages, the Ur-idea of naming days from planet-gods is obvious. Mercurius is as recognisable in the French *mercredi* as in Romanian Mercuri or Welsh Mercher. The Slav languages, however, taking a lead from Greek, prefer numbering systems. (Five, in Russian, is *pyat*; Friday is *Pyatnitsa*. In Greek, Monday, Tuesday and Wednesday are *Deutera*, *Triti* and *Tetarti*; i.e.,

second, third and fourth.)

Saturnus, alone among the planet-gods, resisted Germanisation. And Saturday was “different” from other weekdays long before the two-day weekend developed. In ancient Rome it became somewhat inauspicious. Then it was, for a time, the Sabbath, both for Jews and for many early Christians. It is still *Sabato* in Italian, *Sabado* in Spanish, *Sobota* or *Subota* in the Slav languages.

Over the naming of Sunday some confusion has crept in, for which Constantine the Great is much to blame. In 321AD, when he ordered the cities of his empire to rest on this day, his edict was related to the sun, rather than to Christianity. Three centuries earlier, Augustus had officially recognised the week, with its Sumerian-style planet-gods. *Dies solis*, the sun's day, was mildly auspicious, but only the Christians made it really special as their day for congregational prayer, linked with the Resurrection and called the Lord's Day. Constantine chose to boost that day while invoking not Christ but the Unconquered Sun (the emperor himself, at that point, saw the two deities as one). He thereby gratified Christians without offending sun-worshippers.

So it was a shrewd move, at the time. But it left the naming of the day in schism. In its Germanic versions it is now strictly the Sun's day (Sonntag, Zonday, etc). But it is given to the Lord (Latin *dominus*, Greek *kyrios*) in Romance languages (*Domingo*, *Domenica*, *dimanche*) and Greek (*Kyriaki*), and the Celts are split, Welsh *Dydd Sul* confronting Gaelic *De Domhnaich*.

Stalin imposed first five-day and then six-day weeks on the Soviet Union

Most striking of all Sunday's names is the Russian *Voskresenye* (“Resurrection”), which endured through long years of imposed atheism. Do not imagine that Sumeria's week and its day-names have never faced any challenges. The French Revolution brought in a ten-day “week” whose days were, literally, numbered (the experiment lasted, officially, for 12 years, but never really took). As soon as the Bolsheviks seized power in Russia in 1917 they tried, but failed, to imitate the French revolutionaries (or the Pharaohs?). Later, for 11 years starting in 1929, Stalin imposed first five-day and then six-day weeks on the Soviet Union. The elimination of Sunday, with its strong religious associations, was one purpose of his experiments. They all failed, abjectly. Warned by this, the communist regimes established in other countries after 1945 did not even try to tamper with the Ur-old seven-day week.

Today, Sumeria's 4,400-year-old feat of cultural imperialism is triumphantly intact and more assured of universal acceptance than ever. How can this be explained? Seven is a thoroughly awkward number. It gives us a year of 52 weeks (another awkward number), plus the annoying extra one or two days which force us to keep buying new calendars.

The seven-day system's ability to challenge and, in time, overlay all others has always rested on its religious inspiration, not on its practical value. It has leapt blithely from one religious base to another, from Ur of the Chaldees to Israel, then on to Christendom, to Islam. It infiltrated the Roman empire before Christianity and reached India many centuries before the first Muslim invaders. European colonisers spread it through the Americas, but in the Old World, wherever Hindu or Muslim influences had penetrated, even the earliest European explorers found it was there before them.

Today, most of the human race takes it for granted that their activities are recorded in weeks. There are two groups: those who feel that the week has real religious significance and that there is something holy about one day in seven, and those who have no such feeling. In neither group will you find many people who know how the week came into existence, or came to matter.

“Men of old” knew. They could read it in the heavens. In a song of great antiquity like “Green grow the rushes O”, it was natural, perhaps unavoidable, to include the line “Seven for the seven stars in the sky”.

They are all still there: Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn. We may send out spacecraft to ring them round, but we ourselves are still held in the hebdomadal grip of the Seven.

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Nanotechnology in biology

The good of small things

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Living cells are natural nanotechnology. Artificial nanotech is about to give them a helping hand

NANOTECHNOLOGY is a word that seems to mean all things to all men. All it is, however, is technology on a “nano” scale: ie, employing devices with dimensions measured in nanometres (billionths of a metre). Since that is the scale of large molecules, many cynics regard it as merely a fancy name for chemistry.

The inventor of the term, Eric Drexler, then an engineer at the Massachusetts Institute of Technology, had greater ambitions. In “Engines of Creation”, a book published in 1986, he argued that it would be possible one day to construct self-replicating “nanomachines” that could assemble atoms into molecules, thus building new objects from the inside out.

On the face of things, that sounds ambitious. But there are already things that work more or less this way: living cells. If Dr Drexler's vision is ever to come to pass, it may not take the form of molecule-sized cogs and fly-wheels, as he originally thought, but of artefacts that interact with the natural nanotechnology of biology.

“Nanobiotechnology” or “nanomedicine”, as this field is variously called, is a natural marriage. A cell is a warehouse of nanoscale machines. It is held in shape by a scaffold of microtubules, whose components have diameters measured in nanometres. Its proteins are manufactured on nanoscale assembly lines called ribosomes and packaged into shape by another nanoscale device known as the Golgi apparatus. Those proteins are often themselves nanoscale machines called enzymes—machines designed to rip molecules apart or join them together, according to a cell's needs. Artificial devices that interacted with these machines could analyse a cell's contents, deliver drugs to it, kill it if it became a nuisance—or even harness it to work as a miniature factory.

Little helpers

A typical example of the state of the nanobiotechnological art is Tejal Desai's artificial pancreas. Dr Desai, who works at Boston University, is aiming to produce something that could be implanted into those diabetics who now have to inject themselves with insulin—a hormone that is produced in the “islet” cells of the pancreas. The islet cells that Dr Desai has chosen for her experiment come from mice. That makes them easy to obtain; but normally, mouse cells would last only a few minutes in a human body before they were destroyed by antibodies from the immune system.

This is where nanotechnology comes in—albeit of a rather crude variety. For Dr Desai has encased her mouse pancreatic cells in a membrane studded with “nanopores” a mere seven nanometres across. These are punched through the membrane using photolithography, the same technique that is used to carve components on to computer chips.

As glucose from the blood washes in through the nanopores, the enclosed islet cells respond by releasing insulin. At seven nanometres, the pores are big enough to allow the passage of glucose and insulin, both of which are small molecules. However antibodies, which are significantly larger, cannot squeeze through, and so cannot damage the islet cells.

So far, the technique has been tried only in rats (whose immune systems object to mouse cells at least as strongly as do those of people). Diabetic rats implanted with the capsules have survived for weeks without insulin shots. The device is therefore well on its way to being a successful nanoscale medical invention.

Nanopore capsules could also be used to deliver steady doses of drugs. In this case the pores would act as turnstiles rather than gatekeepers. By making them only slightly bigger than the molecules of the drug, they would control the rate of those molecules' diffusion, keeping it constant regardless of the amount of drug remaining inside a capsule. Dr Desai compares such a capsule to a crowded room with a door wide enough for only one person at a time. The rate that the room empties depends more on how fast people can squeeze themselves through the door than on how full the room is.

Shining a light

Other researchers are devising nanoscale devices that can interact with biological molecules in a more complicated way. For example, nanoscale manufacturing allows the design of probes that can monitor biological experiments with far greater sensitivity than can be achieved today.

One way to do this is by using semiconductor nanocrystals, or “quantum dots”, instead of the organic dyes currently employed to tag biological molecules. Organic dyes are chemically unstable, and so tend to fade with time. Moreover, it is hard to monitor different sorts of molecules simultaneously using dyes, since each different dye must be illuminated with light of a specific wavelength if it is to shine brightly enough to be detectable.

Quantum dot nanocrystals (QDNs) could solve these problems. These crystals, measuring between five and ten nanometres across, are made up of three components. Their cores contain paired clusters of atoms such as cadmium and selenium that combine to create a semiconductor. This releases light of a specific colour when stimulated by ultraviolet of a wide range of frequencies. These clusters are surrounded by a shell made of an inorganic substance, to protect them. The whole thing is then coated with an organic surface, to allow the attachment of proteins or DNA molecules. By varying the number of atoms in the core, QDNs can be made to emit light of different colours.

Even with a nanocrystal in tow, a protein can react normally with other molecules. So, by bathing a cell containing such tagged proteins with ultraviolet light, a microscope can be used to locate the proteins—following them around the cell as they go about their business. According to Mitch Gaver, of Quantum Dot Corporation, a nanotechnology firm based in Hayward, California, it will eventually be possible to track five to ten QDN tags at once as they shuttle around inside a cell.

Another sort of molecule that might be useful for tagging things inside cells is called a dendrimer. Dendrimers measure between two and 20 nanometres across, and have the starburst shape of a bare tree's branches. The tips of the branches can be modified to carry reactive chemical groups, or be linked to antibodies, to pieces of DNA, or to metal atoms. Moreover, dendrimers are adept at wiggling their way inside cell membranes.

In this month's *Nature Biotechnology*, Jeff Bulte of Johns Hopkins University in Baltimore and his colleagues report that magnetically tagged dendrimers can be used to track stem cells after they are transplanted into the brains of living rats. Dr Bulte and his team manufactured dendrimers linked to iron oxide molecules and left them in a culture with stem-cell-derived brain cells. The “magnetodendrimers” were taken up by the cells, which were then injected into the brains of rats. Using magnetic-resonance imaging to detect the iron oxide in the dendrimer, the researchers were able to track the locations of the transplanted cells and watch as they made new tissue in the brain.

Other researchers are exploiting nanobiotechnological ideas to create drugs that will interact specifically with diseased tissues. Dendrimers are particularly suited to this purpose. James Baker, of the University of Michigan in Ann Arbor, reckons that a dendrimer could be made into a sophisticated anti-cancer drug if it could be modified to carry five chemical tools. One branch would have a molecule designed to bind to receptor molecules that are found most commonly on cancer cells. A second would hold a molecule that fluoresces if it finds a genetic mutation associated with cancer. A third branch would have a metal atom or some other substance that could be detected easily using X-rays, thus allowing the shape of the tumour to be worked out. A fourth would carry a drug molecule that could be released on demand, perhaps by a laser. And the fifth would have a signal molecule that would be released only on the cancerous cell's death.

Dr Baker's laboratory has already manufactured a dendrimer, about seven nanometres across, which carries all of theseelements. Cultured cells with the appropriate receptors and cancer-causing mutations in their genes took these dendrimers up and were promptly poisoned by them, leaving nearby cells without such receptors untouched. The laboratory's researchers are trying to see if the dendrimers have the same effects in living animals.

A use for buckyballs?

A similar technique may at last yield a use for buckminsterfullerene, the soccer-ball-shaped molecule made of 60 carbon atoms that has been the focus of much hope and hype from nanotechnologists ever since its discovery in 1985. Stephen Wilson, a chemist at New York University, discovered that the surface of the fullerene molecule could be used as a scaffold to support other molecules. In collaboration with some other chemists interested in nanotechnology, he founded C-Sixty, a firm based in Toronto, that is now developing the first fullerene-based drug candidates.

So far, C-Sixty's most promising bet is an anti-AIDS drug that consists of a fullerene with dendrimers stuck on either side, rather like antlers. Since the dendrimers are water-soluble, the whole complex can dissolve in biological fluids, which fullerene alone cannot.

Dr Wilson and his colleagues have discovered that the complex finds its way to the active site of a viral enzyme known as reverse transcriptase. This enzyme is critical to the life cycle of HIV, the virus that causes AIDS, because it translates the virus's genetic material into DNA, which the host cell then unwittingly uses to make more viruses. C-Sixty's fullerene-based drug scuppers this process by settling snugly into the enzyme's active site, stopping it functioning.

That is not so different from the method of action of an existing class of anti-AIDS drugs known as protease inhibitors. These work by binding chemically to that enzyme's active site to inhibit its action. (Protease cuts the raw chain of virus protein produced by a subverted cell into functional molecules.) However, the mechanism is not quite identical. Instead of binding chemically, C-Sixty's fullerene drug forms a mechanical plug for the active site. It is therefore less sensitive to the precise chemical make-up of the site.

The reason this may be important is that strains of HIV which are resistant to protease drugs are beginning to emerge. Uri Sagman, C-Sixty's boss, says that it might be more difficult for HIV to develop resistance to a fullerene-based drug than to existing drugs, because an enzyme would have to undergo a drastic change in shape to confound the fullerene, whereas a few minor mutations are enough to render an existing chemical-binding-based drug ineffective. Besides the evolutionary odds against such a drastic change happening, a big alteration in the shape of its active site might well render an enzyme—and thus the virus—ineffective.

Reza Ghadiri, a chemist at the Scripps Research Institute in La Jolla, California, recently performed another striking piece of potential nanomedicine. He discovered an entirely new class of “nanotube” drugs that kill bacteria—even the sort that have developed resistance to traditional antibiotics. Dr Ghadiri found that, if rings of eight amino acids (the molecular building blocks of proteins) are placed near cell membranes, they self-assemble into tubes within those membranes. The tubes are about three nanometres in diameter and six nanometres long. That is big enough to puncture a membrane. The result is that many of the cell's critical components squirt out, and it dies.

To make his rings into effective bactericides, Dr Ghadiri has had to get them to form only in the membranes of dangerous germs. He does this by tweaking the “side chains” of the amino acids that make up a tube. These side chains are groups of atoms that are not critical to a tube's structure, but can change the way it interacts with the outside world.

Cell membranes are made of fatty molecules, but the details vary from one organism to another. In particular, the membranes of bacteria are different from those of people. By testing out various combinations of amino acids, Dr Ghadiri found several octets that were particularly effective against the antibiotic-resistant strain of *Staphylococcus aureus*, a common pathogen. He then infected mice with lethal levels of *S. aureus* and injected some of them with doses of his selected rings. The control mice (ie, those without the rings) died. Those that received the rings survived. Dr Ghadiri says that the rings did their work in less than an hour.

In theory, bacteria could eventually develop resistance to a drug made of such nanotubes. But, because

of the simple modular method by which they are constructed, their composition can be changed easily. So, as the target bacteria evolve, the drug can be modified in response. In contrast, it is difficult to find potent substitutes for ordinary antibiotics, whose formulae are usually arrived at by luck rather than design. As a result, a number of drug companies have shown interest in Dr Ghadiri's work, though it will be several years before any drug enters clinical trials.

These modest forays are, of course, a far cry from the fictional vision that is forever dogging nanotechnologists—the miniature submarine, crewed by Raquel Welch, that zips through a human body killing off lethal cells in the film “Fantastic Voyage”. But given time, nanotechnology may yet demonstrate that it has more to offer biology than the stuff of science fiction.

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Protein-based computer memories

Data harvest

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Bacterial protein can be used in computers

MANY people think that information technology and biotechnology will rule the 21st century. Robert Birge, a chemist at the University of Connecticut, is trying to combine them, by making computer memories out of protein.

The protein in question is bacteriorhodopsin (bR), a molecule that undergoes a structural change when it absorbs light. By using genetic engineering to tweak wild bR from a bacterium called *Halobacterium salinarum*, Dr Birge and his colleagues have made a variety of the molecule that they claim is well-suited to act as an element of a computer's memory. Hit with a green light, it adopts one shape. Hit subsequently with a red light, it twists itself into another. Then, if hit with blue light, it resets itself into its original state.

To make a memory from the protein, Dr Birge suspends elements made from it in a transparent plastic cube known as a cuvette. A pair of lasers arranged at right angles to one another write data into the cuvette by shining in turn on “slices” through the plastic matrix. The first laser, which produces green light, sweeps the whole cuvette, causing its protein contents to take on a shape that (in binary code) is designated as “zero”. The second laser, which produces red light, then stimulates particular sites to take the second shape. This corresponds to “one” in binary code. Once the lasers are switched off, data recorded this way will, according to Dr Birge, remain stable for more than 12 years.

To read the stored data, a low-powered red laser is shone slice by slice through the cuvette. This does not disturb the conformation of the protein molecules; but those in state “zero” absorb light at this wavelength. A machine placed behind the cuvette detects this absorption pattern and translates it into the appropriate string of ones and zeroes. Once the contents have been read into a more conventional storage device, the cuvette can be wiped clean and reset by illuminating it with a blue laser.

Dr Birge says that each cuvette can now hold about seven gigabytes of data (a small laptop computer might have about this much space on its hard drive). He hopes to boost that figure to ten gigabytes by finding a better-performing variety of the protein. Only those with deep pockets, however, could afford the $25,000 cost of each device.

Luckily for Dr Birge, the deep-pocketed American air force thinks that bR cuvettes could be a good way to equip its aircraft and satellites with light, high-density devices to store the mountains of images collected during reconnaissance missions. A protein-based memory is particularly suitable for this, because the bR molecule is robust enough to withstand the barrage of radiation from space that wreaks havoc on conventional magnetic-memory devices operating at high altitude.

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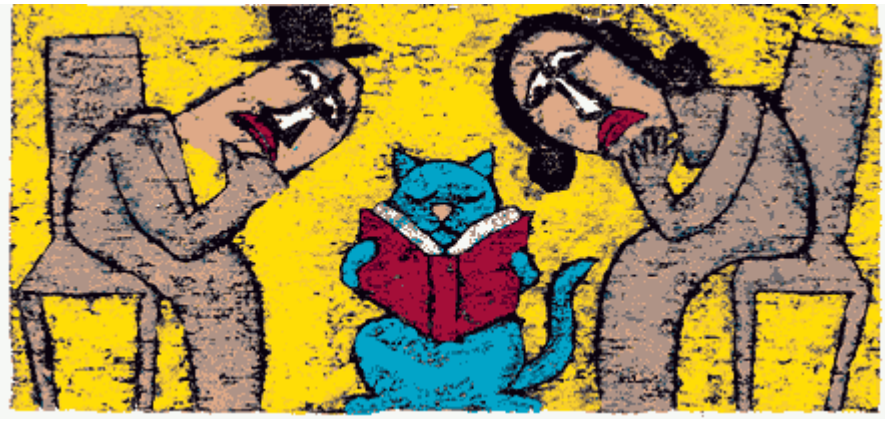
Books of the year

In our humble opinion

Dec 20th 2001



Our reviewers pick the finest books of 2001

Non-fiction

Click to buy from Amazon.com, Amazon.co.uk

Edward Fox's investigation into the unresolved killing in 1992 of Albert Glock, an American archaeologist excavating in the Israeli-occupied West Bank, is far more than a murder story. Subtle in its approach and lyrical in style, it takes you straight to the heart of the Israel-Palestine struggle and the debate over who controls the biblical history of the Holy Land (see review).

Click to buy from Amazon.com, Amazon.co.uk

Amid the rage that continues to sweep the Middle East, a calm and dispassionate historian explains why Jerusalem has been such a pivotal and emotive issue in the Israeli-Palestinian conflict, and reflects on ways in which the city might one day be shared (see review).

Click to buy from Amazon.com, Amazon.co.uk

Hew Strachan speaks directly to his readers. His mastery of the literature, his clarity of thought and elegantly plain language make this weighty book gripping, memorable and easy to understand. It is, and will remain for many years, the definitive history of the great war (see review).

Click to buy from Amazon.com, Amazon.co.uk

Sacred Geography
By Edward Fox

Metropolitan; $25
Published in Britain as "Palestine Twilight". HarperCollins; £19.99

Buy it at
Amazon.com
Amazon.co.uk

Divided Jerusalem: The Struggle for the Holy City
By Bernard Wasserstein

Yale University Press; 432 pages; $29.95
Profile Books; 432 pages; £20

Buy it at
Amazon.com
Amazon.co.uk

The First World War, Volume I: To Arms
By Hew Strachan

Oxford University Press; $39.95 and £30

Buy it at
Amazon.com
Amazon.co.uk

A haunting portrait of nationalism and loyalty emerges from the author's investigation of his two grandfathers' uncomfortable secrets. One was a west Cork Catholic, the other a Maronite Christian from the south-east of Turkey. Both were interned by the British in the tense atmosphere of the 1940s (see review).

Blood-Dark Track: A Family History
By Joseph O'Neill

Granta; $27.95 and £16.99

Buy it at
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Seabiscuit, a racehorse, was a national hero in 1930s America and his epic achievements were a tonic to many during the economic depression. Laura Hillenbrand's descriptions of his races are breathtaking, and her portraits of the curious troupe surrounding him quite compelling (see review).

Seabiscuit: An American Legend
By Laura Hillenbrand

Random House; $24.95
To be published in Britain in May by Fourth Estate; £16.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

A happy childhood of scientific curiosity nourished by a passionately intellectual family of Russian-Lithuanian Jewish descent. The young Oliver Sacks was a prodigy, but equally wonderful is the whole unforced atmosphere of his world, the automatic belief in education—not as school, but as life-of-the-mind. Read it to your children (see review).

Uncle Tungsten: Memories of a Chemical Boyhood
By Oliver Sacks

Knopf; $25
Picador; £17.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

A fascinating exploration of the American mind that traces the rise of pragmatism from the shadow of the civil war to the onset of crusading moralism with the civil rights movement and the cold war (see review).

The Metaphysical Club: A Story of Ideas in America
By Louis Menand

Farrar, Straus and Giroux; $27
Flamingo; £19.99

Buy it at
Amazon.com
Amazon.co.uk
Amazon.co.uk

Click to buy from Amazon.co.uk

Learned, literate, combative and funny, Roy Foster, the biographer of Yeats, is particularly irritated by the cant, self-delusion and hypocrisy surrounding Ireland's bogus pop history—and Frank McCourt's and Gerry Adams's unreliable memoirs.

The Irish Story: Telling Tales and Making it Up in Ireland
By R.F. Foster

Allen Lane, The Penguin Press; £20

Buy it at
Amazon.co.uk

Click to buy from Amazon.co.uk

A fine example of contemporary history, which traces the intricacies of the Northern Ireland peace process and demonstrates that politicians and terrorists both like to tell journalists things that they would conceal from their most intimate partners (see review).

Endgame in Ireland
By Eamonn Mallie and David McKittrick

Hodder & Stoughton; £17.99

Buy it at
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Meg Greenfield, who died in May 1999, was for 20 years the shrewd, private, principled and witty editorial-page director of the *Washington Post*. Two generations after Richard Neustadt's “Presidential Power”, she matches him in

Washington
By Meg Greenfield

PublicAffairs; $26 and £18.99

wisdom, relevance and punch.

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

This timely book is based on a simple premise: why, when many Americans and non-Americans alike think that the United States is either bad at foreign policy or congenitally uninterested in the rest of the world, has America had such a successful foreign policy during the best part of two centuries (see review)?

Special Providence: American Foreign Policy and How It Changed the World
By Walter Russell Mead

Knopf; $30

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

A mammoth statistical exercise showing that, by almost all measures, the environment is improving as the world gets richer—thereby casting grave doubts on the common green view that trade and economic growth automatically harm the environment (see review).

The Skeptical Environmentalist
By Bjorn Lomborg

Cambridge University Press; $69.95 and £47.50 ($27.95 and £17.95 paperback)

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.co.uk

Convinced that the market economy is compatible with, and indeed essential for, a fair society, the author shows that Europe's economic performance compares well with America's, and argues that Europe's social model should be reformed rather than scrapped (see review).

Just Capital
By Adair Turner

Macmillan; £20

Buy it at
Amazon.co.uk

Click to buy from Amazon.co.uk

In the final volume of this peerless series, David Kynaston captures the *Zeitgeist* of the years when the City was being transformed from something of an amateurish gentlemen's club to a real American-style meritocracy (see review).

The City of London, Volume IV: A Club No More (1945-2000)
By David Kynaston

Harvard University Press; $45 and £30.95

Buy it at
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

A lucid and historical account of one of the finest achievements of the European Enlightenment, the application of the new science of political economy to the solving of real problems. Emma Rothschild shows that modern free-marketeers who neglect the political and moral aspects of Adam Smith's writings are unfair to the man whose name they have hijacked. The demystification of what Smith meant by “the invisible hand” is especially welcome (see review).

Economic Sentiments: Adam Smith, Condorcet, and the Enlightenment
By Emma Rothschild

Harvard University Press; $45 and £30.95

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

In this sharply original book, Jonathan Rose shows how laundresses, farm labourers, dockers and domestic servants fashioned an intellectual life for themselves in circumstances that were far from ideal. Drawing on letters, diaries and unpublished memoirs of unremembered Victorians, Mr Rose rediscovers a tradition of self-education which recent academic cultural criticism has tended to devalue (see review).

The Intellectual Life of the British Working Classes
By Jonathan Rose

Yale University Press; $39.95 and £29.95

Buy it at
Amazon.com

Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Joachim Fest's masterly portrait of an architect-turned-technocrat whose self-serving acquiescence in infamy makes salutary reading for all who are tempted to plead pressure of work as an excuse for evading moral choices.

Speer: The Final Verdict
By Joachim Fest

Weidenfeld & Nicolson; £20

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

This marvellous book reveals the life of the man who inspired the Romantics to review the skies (see review).

The Invention of Clouds: How an Amateur Meteorologist Forged the Language of the Skies
By Richard Hamblyn

Farrar, Straus and Giroux; $27
Picador; £14.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Natalie Wood, born to Russian immigrants as Natasha Zakharenko, may have been a Hollywood princess who drowned mysteriously at the age of 42, but she was also a good sport. Hard to find an actress nowadays who would turn up to accept an anti-Oscar as the year's worst actress and say the award's manifest sincerity had moved her to tears.

Natasha: The Biography of Natalie Wood
By Suzanne Finstad

Crown; $25.
Century; £17.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.co.uk

Oscar Wilde, who could resist everything except temptation, rates the longest entry—with Francis Bacon and Goethe in hot pursuit—in this encyclopedia of concise and sardonic wisdom.

The Penguin Dictionary of Epigrams
Edited by M.J. Cohen

Penguin; £12.99

Buy it at
Amazon.co.uk

Click to buy from Amazon.co.uk

This handy rulebook will appeal to those who like their pedantry lightly cooked, and who have put aside the new “Fowler's Modern English Usage” for a rainy day.

Mind the Gaffe
By R.L.Trask

Penguin; £12.99

Buy it at
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

This brilliant revisionist account of Scott's fatal bid for the South Pole by an atmospheric scientist specialising in Antarctica proves that Scott and his men died not from incompetence, but because of exceptional cold on their return march.

The Coldest March: Scott's Fatal Antarctic Expedition
By Susan Solomon

Yale University Press; $29.95 and £19.95

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Secret Knowledge:

David Hockney's claims about how artists from the early 15th century used mirrors and lenses to create living projections are bold and entertaining.

Click to buy from Amazon.com, Amazon.co.uk

This study of the emerging identities that shaped the western hemisphere refreshes our understanding of the colonial past and of the origins of the independence movements in the New World. A masterpiece of scholarly ingenuity.

Click to buy from Amazon.com, Amazon.co.uk

Few things are sadder than to discover someone after they die. Sanjivi Guhan, an international civil servant who won friends and admirers both inside and outside India, was a remarkable man. He deserves a wider stage.

Click to buy from Amazon.co.uk

The narrator of this extended essay is a film critic, puzzled as to why the British don't make decent movies any more. Is it because they have become embarrassed about being British? The critic suffers from an abscessed tooth, and the themes of dentistry, seaside resorts, cricket, films and Englishness create an amalgam—a dentist's word—which is entirely satisfying and unexpected, pertinent and funny.

Click to buy from Amazon.co.uk

Frank Kermode's literary journalism is as readable as a book of adventure stories. It ranges across the fields of literature ancient and modern before gliding into philosophy, painting and biblical scholarship. He illuminates everything he touches (see review).

Click to buy from Amazon.com, Amazon.co.uk

Maximilian Novak's scholarship brilliantly explains the author of “Robinson Crusoe” and his age. A must, not only for fans of 18th-century literature, but for students of the political, social and religious history of the period as well.

Rediscovering the Lost Techniques of the Old Masters
By David Hockney

Viking; $60
Thames & Hudson; £35

Buy it at
Amazon.com
Amazon.co.uk

How to Write the History of the New World: Histories, Epistemologies, and Identities in the Eighteenth-Century Atlantic World
By Jorge CaÃ±izares-Esguerra

Stanford University Press; $55
Cambridge University Press; £40

Buy it at
Amazon.com
Amazon.co.uk

India's Development Experience: Selected Writings of S. Guhan
Edited by S. Subramanian

Oxford University Press; $39.95 and £23.99

Buy it at
Amazon.com
Amazon.co.uk

British Teeth
By William Leith

Short Books; £4.99

Buy it at
Amazon.co.uk

Pleasing Myself: From Beowulf to Philip Roth
By Frank Kermode

Allen Lane, The Penguin Press; £20

Buy it at
Amazon.co.uk

Daniel Defoe: Master of Fictions
By Maximilian E. Novak

Oxford University Press; $45 and £30

Buy it at

Click to buy from Amazon.com, Amazon.co.uk

Charles Babbage's remarkable designs for programmable calculating machines anticipated many aspects of the modern computer by more than a century.

The Difference Engine: Charles Babbage and the Quest to Build the First Computer
By Doron Swade

Viking; $24.95
Published in Britain as "The Cogwheel Brain". Little, Brown; £9.99

Buy it at
Amazon.com
Amazon.co.uk

Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Annabel Jane Wharton provides an original account of American cultural diplomacy—and an entertaining glimpse of capitalist aesthetics in the McCarthy era (see review).

Building the Cold War: Hilton International Hotels and Modern Architecture
By Annabel Jane Wharton

University of Chicago Press; $45 and £28.50
University of Chicago Press (July 2001); 263 pages; $45 and £28.50

Buy it at
Amazon.com
Amazon.co.uk
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Redolent with scholarship, Todd Longstaffe-Gowan's survey is informative and entertaining, delivering narrative, analysis and anecdote from London's social and architectural histories as they intersected in the new urban garden spaces of the 18th and 19th centuries (see review).

The London Town Garden 1700-1840
By Todd Longstaffe-Gowan

Yale University Press; 144 pages; $60 and £30
Yale; 289 pages; £30

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

A bumper crop of Whitney Balliett's *New Yorker* sketches and pen portraits is gathered here—from Louis Armstrong to Wynton Marsalis—in a vivid chronicle of the music he once famously described as “the sound of surprise”.

Collected Works: A Journal of Jazz 1954-2000
By Whitney Balliett

St Martin's; $40
Granta; £20

Buy it at
Amazon.com
Amazon.co.uk

Fiction

Click to buy from Amazon.co.uk

This vaulting first novel recreates Cromwellian England with a modern twist: an obsessive liaison between two deserters from the New Model Army at a time when homosexuality was a hanging offence. A consuming and headlong read, “As Meat Loves Salt” is highly accurate as a historical novel and electric as a story of love and war. It is an unusual and memorable achievement which the judges of the year's literary prizes made a bad mistake in ignoring (see review).

As Meat Loves Salt
By Maria McCann

Flamingo; £14.99.
To be published in America by Harvest in Fall 2002

Buy it at
Amazon.co.uk
Amazon.co.uk

Click to buy from Amazon.co.uk

Instead of writing the third and final volume of her autobiography, Doris Lessing wrote this clear-eyed yet warm-hearted novel about mostly decent and sometimes idealistic characters.

The Sweetest Dream
By Doris Lessing

HarperCollins; $26.95
Flamingo; £16.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com

All of Ursula Le Guin's strengths are abundantly present in the fifth volume of her Earthsea series: narrative power, tautly controlled and responsive prose, an imagination that never loses touch with the reality of things as they are and an ability to produce parables about our darkening world without ever being hectoring or simplistic.

The Other Wind
By Ursula K. Le Guin

Harcourt Brace; $25

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

For sheer force of imagination and emotional wallop, Peter Carey was in a class of his own this year. His ability to inhabit the mind of his narrator, Ned Kelly, a celebrated Australian outlaw of the 19th century, and to find something like poetry in his verbal eccentricities, is uncanny. A history lesson, a fascinating character study and a cracking yarn—though not necessarily in that order (see review).

True History of the Kelly Gang
By Peter Carey and Peter Carey;

Faber; £16.99
Knopf; $25

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Set during the cultural revolution, this novel about two teenagers shipped off for re-education to a remote village where they discover a stash of forbidden western books is a paean to the magic of literature (see review).

Balzac and the Little Chinese Seamstress
By Dai Sijie

Knopf; $18
Chatto & Windus; £12.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Ma Jian's sharp images and straight-talking narrator create a remarkable picture of a country in meltdown between communism and capitalism.

Red Dust
By Ma Jian

Pantheon; $25
Chatto & Windus; £12

Buy it at
Amazon.com
Amazon.co.uk
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

W.G. Sebald, the mercurial and poetic scholar who was killed in a car accident earlier this month at the age of 57, returns once again to the evocation of memory, lament and restless wandering (see review).

Austerlitz
By W.G. Sebald (translated by Anthea Bell), W.G. Sebald and translated by Anthea Bell

Random House; $25.95
Hamish Hamilton; £16.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

His best novel to date, a virtuoso performance whose sparkling surface is matched by its moral depth.

Atonement
By Ian McEwan

Jonathan Cape; £16.99
Doubleday; 372 pages; $26

Click to buy from Amazon.com, Amazon.co.uk

Set in 16th-century Istanbul within a guild of miniaturists, Orhan Pamuk's novel is a gripping whodunit, an insightful treatise on painting and representation, and a unique literary invention (see review).

My Name is Red
By Orhan Pamuk

Knopf; $25.95
Faber and Faber; £10.99

Buy it at
Amazon.com
Amazon.co.uk

Buy it at
Amazon.com
Amazon.co.uk

Poetry

Click to buy from Amazon.co.uk

Rebecca Elson died of cancer in 1999 at the age of 39. A trained astronomer, she had an exact and loving understanding of the universe; and, far too soon, the knowledge that she would not live long in it. With great poignancy, she shows us the world through the eyes of a human being faced by her finite time.

A Responsibility to Awe
By Rebecca Elson

Carcanet; £6.95

Buy it at
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

This collection reveals Paul Muldoon's progress from student prodigy to virtuoso celebrator and underminer of the idea of the poem as a set piece (see review).

Poems: 1968-1998
By Paul Muldoon

Farrar, Straus and Giroux; $35
Faber & Faber; £12.99

Buy it at
Amazon.com
Amazon.co.uk

Click to buy from Amazon.com, Amazon.co.uk

Seamus Heaney's pen flows with Schubert-like freshness and unpredictability. This picnic-basket of reminiscence is filled with memories of childhood, schooldays, early travels and young love (see review).

Electric Light
By Seamus Heaney

Faber and Faber; 82 pages; £14.99
Farrar, Straus and Giroux; 82 pages; $20

Buy it at
Amazon.com
Amazon.co.uk

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About sponsorship

Ashok Kumar

Dec 20th 2001
From The Economist print edition

Ashok Kumar, a star of India, died on December 10th, aged 90

Ronald Grant Archive

ANY visitor to India seeking the flavour of the country could do worse than to visit a cinema in one of the big cities. Almost certainly the dialogue will be in Hindi. But never mind, the simple story that unfolds will be readily comprehensible: of love triumphant, of treachery exposed. Whatever the barriers, the forces of good are destined to triumph, urged on by an audience happily showing its emotions: one that claps the hero's entrance, one that sighs for the heroine. This was the India that Ashok Kumar served for nearly 70 years, providing for a few rupees some escape from the grind of life.

He was known affectionately as Dadamoni, which translates roughly as “respected elder brother”. The prime minister, Atal Behari Vajpayee, spoke of Mr Kumar's “emotive appeal”, aware that for many his death was of more importance than that of any politician. Mostly, politicians could only offer promises of a sunnier world. In his films Mr Kumar always delivered. He might have done well in politics, a career pursued in India by a number of former film stars. But he felt that he would have let down his fans. Politicians are not highly regarded in India.

Mr Kumar liked to recall the days when acting itself was regarded as disreputable. His parents wanted him to become a lawyer, and he dutifully obtained a law degree. When he announced in 1935 that he had the offer of a role in films at a company called Bombay Talkies “my mother started weeping” and his engagement to a girl of “good family” was broken off. With such a lobby against him he pleaded with Bombay Talkies for a job other than acting. As a director, perhaps? But Mr Kumar was good looking and the film was ready to shoot. Take it or leave it. Rather than join the five other members of his family who had become lawyers, he took it. He was good enough to be kept on and in his third film, “Achhut Kanya”, a story of love between a Brahmin and a low-caste girl, was a hit. Other successes followed, notably “Kismet” which at one cinema ran for three years. Mr Kumar became respectable enough to marry. A suitable bride was found and introduced to him the day before the wedding. The marriage lasted for 50 years, until Mrs Kumar died. It was said to be enduringly blissful. Nothing less was expected of Ashok Kumar.

Being natural

India's film industry is the world's biggest measured by the number of films produced, about 800 a year. It has an annual turnover of about $1.3 billion and employs more than 6m people. Few of its films are shown outside India. The late Satyajit Ray, much admired by European and American film critics, was not typical of Indian directors. In India his films tended to be coolly received by the public disappointed by his less than happy stories, however much they were praised in Cannes. “Lagaan”, directed by Ashutosh Gowariker, set in British India in the 19th century and nearly four hours long, has been getting good reviews this year both in India and internationally. But such films are still the exception to the formulaic quickies of what has come to be known as Bollywood (the B probably stands for Bombay, where films were first made in 1897). Bollywood's productivity can be impressive, with top stars being involved in perhaps a dozen films at a time, moving from set to set and role to role. A feature film in Hindi can be made for as little as $1m, no more than the coffee bill in an American studio.

Ashok Kumar appeared in so many films that even his admirers lost count; some say 200, others claim almost 300. By film standards he lived modestly. His main indulgence was vintage cars. His regular drink was water, lots of it, a practice to which he attributed a healthy old age. He was modest about his films, many of which were standard Bollywood fare. Some of the early ones, where Mr Kumar suddenly and

improbably bursts into song, may best be forgotten. But as he developed, Mr Kumar's acting took on an authority unusual in Indian films. He had been watching films since he was a child, when they were shown on hand-cranked projectors in tents in his native Bihar. Later he watched British and American films, and styled himself on English-speaking actors, especially Humphrey Bogart. He told a reporter,

> You see, our Indian style of acting was very different. We spoke our lines in a particular way which I didn't much like. I always thought natural was best. Every role is a problem. Enacting them to retain the naturalness: that's the fun of it. There was a scene where I had to rush to work in the early morning. I was not used to rushing to work. I have always had leisurely breakfasts because we work so hard all day. This time I told my wife I wanted breakfast fast. I just gulped the tea down and walked out of the house. When I reached the set I acted out the scene as I had that morning at home.

Mr Kumar's audiences may not have been familiar with the finer points of acting, but they recognised with pleasure some bit of business that looked right. He had a way of holding a cigarette that was adopted by millions of Indians. It might be dismissed as a mannerism (and in the healthful West perhaps frowned on). But in Indian cinemas the sight of Ashok Kumar coolly lighting up only provoked murmurs of delight.

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Overview

Dec 20th 2001
From The Economist print edition

The effects of October's zero interest-rate car-financing programmes continue to be seen in **America's** economic data. Business inventories dropped at a record pace of 1.4% in October, thanks to a surge in car sales. In November, the value of retail sales fell by a record 3.7% from the previous month, owing mostly to the end of the incentives. Despite rebounding car prices in November, overall consumer prices were unchanged from the previous month; producer prices fell by 0.6%.

The **euro area's** economic indicators sent mixed signals. **Germany's** Ifo business-climate index recovered in November from its sharp fall of the previous month. The Ifo index of future expectations rose more strongly, creating hopes of a return to stronger growth. Inflation remained subdued: the euro area's consumer-price index rose by 2.1% in the year to November, down from 2.4% in the year to October. Industrial production, however, fell by 2.7% in the 12 months to October, worse than a forecast decline of 1.8%.

Corporate bankruptcies in **Japan** rose by 10% in the year to November, the fifth-worst month for bust businesses since the second world war. A total of 1,851 firms failed, as banks refused to support ailing borrowers.

The **yen** fell to three-year lows against the dollar, before recovering slightly.

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Output, demand and jobs

Dec 20th 2001
From The Economist print edition

% change at annual rate

	GDP		The Economist poll GDP forecasts		Industrial production	Retail sales (volume)	Unemployment % rate	
	1 qtr	1 year	2001	2002	latest	latest	latest	year ago
Australia	+ 4.6	+ 2.5 Q3	+ 2.1	+ 3.2	– 0.4 Q2	+ 5.8 Q3	6.7 Nov	6.3
Austria	+ 0.2	+ 1.2 Q2	+ 1.4	+ 1.1	– 5.9 Sep	+ 1.2 Aug	4.0 Oct	3.5
Belgium	– 1.2	+ 0.9 Q3	+ 1.3	+ 1.1	+ 0.2 Oct*	+ 3.4 Sep	10.8 Nov*	10.7
Britain	+ 2.1	+ 2.1 Q3	+ 2.2	+ 1.7	– 4.2 Oct	+ 7.1 Nov	5.1 Oct†	5.5
Canada	– 0.8	+ 0.8 Q3	+ 1.4	+ 1.2	– 5.7 Sep**	– 0.9 Sep	7.5 Nov	6.9
Denmark	+ 3.5	+ 1.4 Q3	+ 1.2	+ 1.3	nil Oct	– 0.7 Sep	5.0 Oct	5.5
France	+ 1.9	+ 2.0 Q3	+ 2.0	+ 1.2	– 0.3 Oct	– 1.3 Oct	8.9 Oct	9.2
Germany	– 0.6	+ 0.3 Q3	+ 0.7	+ 0.7	– 4.0 Oct	+ 1.1 Oct	9.5 Nov††	9.3
Italy	+ 0.6	+ 1.9 Q3	+ 1.8	+ 1.1	+ 0.8 Oct	– 2.1 Sep	9.4 Jul	10.5
Japan	– 2.2	– 0.5 Q3	– 0.6	– 0.8	–11.8 Oct	– 2.5 Sep	5.4 Oct	4.7
Netherlands	– 1.4	+ 0.4 Q3	+ 1.0	+ 1.1	– 6.3 Oct	– 2.4 Sep	2.0 Oct§	2.6
Spain	+ 1.9	+ 2.9 Q2	+ 2.6	+ 1.8	+ 3.0 Oct	na	12.9 Oct	13.6
Sweden	+ 0.2	+ 0.4 Q3	+ 1.6	+ 1.6	– 2.4 Sep	+ 2.1 Oct	3.7 Nov*	3.9
Switzerland	+ 0.1	+ 0.8 Q3	+ 1.6	+ 0.9	+ 4.2 Q2*	+ 4.8 Oct	2.1 Nov*	1.8
United States	– 1.1	+ 0.6 Q3	+ 1.0	+ 0.6	– 5.9 Nov	+ 8.9 Oct	5.7 Nov	4.0
Euro area	+ 0.4	+ 1.3 Q3	+ 1.5	+ 1.0	– 2.7 Oct	+ 1.8 Sep	8.4 Oct	8.5
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*							
Finland	– 6.7	+ 0.4 Q2	na	na	– 6.2 Oct	+ 3.8 Aug	8.8 Nov*	8.7
Greece	na	+ 4.4 Q3	na	na	+ 2.6 Sep*	+ 8.3 Jul	na	na
Iceland	na	+ 3.62000	na	na	+ 2.5 2000	na	1.4 Oct	1.1
Ireland	na	+ 9.2 Q2	na	na	– 5.8 Oct	+ 3.2 Oct	4.1 Nov	3.7
Luxembourg	na	+ 8.52000	na	na	+ 7.8 Sep	+ 9.5 Aug	2.7 Oct	2.5
New Zealand	+ 7.4	+ 2.8 Q2	na	na	+ 3.5 Q2*	+ 6.3 Q3	5.2 Q3	5.8
Norway	+ 3.8	+ 1.9 Q3	na	na	– 2.0 Oct	+ 3.7 Oct	3.6 Q3	3.5
Portugal	+ 1.6	+ 2.5 Q2	na	na	– 1.0 Oct	+ 3.3 Oct	4.0 Q3	4.0

*Not seasonally adjusted. †Aug-Oct; claimant count rate 3.2% in Nov. §Aug-Oct. **New series. ††EU harmonised rate 8.0% in Nov.

Text refers only to the first 16 countries listed

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Prices and wages

Dec 20th 2001
From The Economist print edition

% change at annual rate

	Consumer prices* latest		Consumer prices* year ago	The Economist poll consumer prices forecast 2001	The Economist poll consumer prices forecast 2002	Producer prices* latest		Producer prices* year ago	Wages/earnings latest		Wages/earnings year ago
Australia	+ 2.5	Q3	+ 6.1	+ 4.2	+ 2.4	+ 2.4	Q3	+ 7.2	+ 3.6	Q3	+ 6.5
Austria	+ 2.0	Nov	+ 3.1	+ 2.5	+ 1.5	– 1.5	Nov	+ 5.7	+ 2.8	Oct	+ 2.0
Belgium	+ 2.1	Nov	+ 3.1	+ 2.5	+ 1.6	– 2.9	Oct	+12.0	+ 3.7	Q3	+ 1.4
Britain	+ 0.9	Nov	+ 3.2	+ 2.0	+ 2.1	– 1.0	Nov	+ 2.7	+ 4.4	Oct	+ 4.2
Canada	+ 1.9	Oct	+ 2.8	+ 2.6	+ 1.7	– 1.0	Oct	+ 4.8	+ 2.3	Sep	+ 3.5
Denmark	+ 1.9	Nov	+ 2.6	+ 2.3	+ 1.9	– 1.2	Nov	+ 6.7	+ 4.3	Q3	+ 3.8
France	+ 1.2	Nov	+ 2.2	+ 1.7	+ 1.2	– 1.6	Oct	+ 6.8	+ 4.2	Q2	+ 5.4
Germany	+ 1.7	Nov	+ 2.4	+ 2.5	+ 1.2	– 1.9	Nov	+ 6.4	+ 2.3	Sep	+ 2.1
Italy	+ 2.4	Nov	+ 2.7	+ 2.7	+ 1.6	– 0.6	Oct	+ 6.8	+ 2.5	Oct*	+ 1.8
Japan	– 0.8	Oct	– 1.1	– 0.7	– 0.8	– 0.8	Nov	+ 0.4	– 0.5	Oct*	+ 1.4
Netherlands	+ 4.2	Nov	+ 3.0	+ 4.7	+ 2.1	– 0.9	Oct	+ 9.2	+ 4.6	Oct	+ 3.3
Spain	+ 2.7	Nov	+ 4.1	+ 3.7	+ 2.3	– 0.4	Oct	+ 5.9	+ 2.9	Q2†	na
Sweden	+ 2.7	Nov	+ 1.7	+ 2.4	+ 1.9	+ 0.5	Oct	+ 4.6	+ 3.3	Sep*	+ 3.9
Switzerland	+ 0.3	Nov	+ 1.9	+ 1.0	+ 0.6	– 2.0	Nov	+ 3.0	+ 1.3	2000	+ 0.3
United States	+ 1.9	Nov	+ 3.4	+ 2.9	+ 1.6	– 1.1	Nov	+ 3.8	+ 3.9	Nov	+ 4.2
Euro area	+ 2.1	Nov	+ 2.9	+ 2.6	+ 1.5	– 0.6	Oct	+ 6.6	+ 3.0	Q2	+ 2.3
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*										
Finland	+ 1.6	Nov	+ 3.3	na	na	– 4.4	Nov	+ 8.8	+ 4.5	Q3*	+ 4.9
Greece	+ 2.4	Nov	+ 4.2	na	na	+ 1.7	Sep	+ 9.2	na		na
Iceland	+ 8.6	Dec	+ 4.2	na	na	+ 6.8	Nov	+ 3.9	+ 9.1	Oct	+ 7.8
Ireland	+ 3.8	Nov	+ 7.0	na	na	– 0.8	Oct	+ 7.7	+ 9.1	Q2*	+ 7.0
Luxembourg	+ 2.1	Nov	+ 3.7	na	na	+ 0.9	Sep	+ 6.1	+ 3.4	Aug*	+ 7.0
New Zealand	+ 2.4	Q3	+ 3.0	na	na	+ 6.2	Q3	+ 8.4	+ 2.0	Q3	+ 1.5
Norway	+ 1.8	Nov	+ 3.2	na	na	–23.2	Nov	+ 6.6	+ 4.4	Q2*	+ 3.9
Portugal	+ 3.9	Nov	+ 3.8	na	na	– 4.9	Oct	+16.9	+ 2.4	Apr*	na

*Not seasonally adjusted. †New series.

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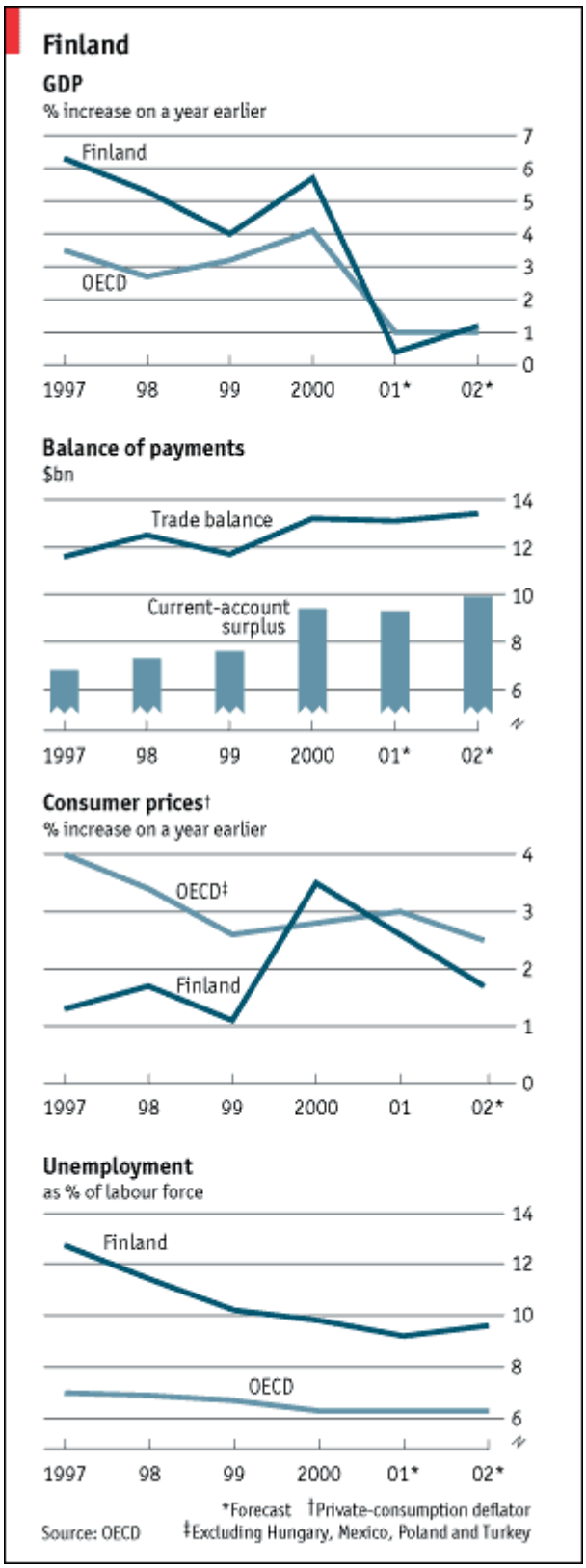
Finland

Dec 20th 2001
From The Economist print edition

After four years of strong GDP growth, reaching nearly 6% in 2000, the Finnish economy slid into recession in 2001. The global slowdown led to a sharp decline in demand for paper products and mobile phones, which together account for half of Finland's exports. A modest economic recovery is expected next year, with GDP growth reaching only 1.2%. As a result, unemployment, which had fallen considerably during the earlier expansion, is forecast to rise to a rate of 9.6% in 2002, much higher than in most other European countries. High labour taxes are partly to blame; the government should shift the burden of taxation away from incomes, argues the OECD in its latest country survey. But the scope for reform is limited by already high taxes on consumption and Finland's deteriorating public finances: the central-government budget is expected to go into deficit in 2002.



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Money and interest rates

Dec 20th 2001
From The Economist print edition

	Money supply* % change on year ago			Interest rates % p.a. (Dec 18th 2001)					
				3-mth money market		2-year	10-year gov't bonds		corporate
	narrow	broad		latest	year ago	gov't bonds	latest	year ago	bonds
Australia	+14.7	+10.4	Oct	4.24	6.20	4.51	5.89	5.49	7.00
Britain	+ 6.9	+ 8.1	Oct	3.97	5.91	4.61	4.86	4.88	6.04
Canada	+11.2	+ 4.2	Oct	2.00	5.56	3.30	5.47	5.38	7.04
Denmark	+ 5.9	+ 4.0	Oct	3.45	5.40	4.16	4.98	5.14	6.47
Japan	+12.9	+ 3.2	Nov	0.02	0.52	0.11	1.32	1.66	1.40
Sweden	+ 7.3	+ 4.9	Oct	3.69	4.05	4.50	5.17	4.82	5.38
Switzerland	+ 1.9	+ 4.8	Nov	1.87	3.38	2.42	3.40	3.51	4.32
United States	+ 6.5	+14.0	Nov	1.84	6.32	3.09	5.12	5.19	6.93‡
Euro area†	+ 5.3	+ 7.4	Oct	3.35	4.88	3.60	4.76	4.81	5.41

*Narrow: M1 except Britain and Sweden M0, broad: M2 or M3 except Britain M4. †Germany for bonds. Benchmarks: US 30-year 5.52%, Japan No.235 1.33%. Central bank rates: US fed funds 1.75%, ECB refinancing 3.25%, BOJ overnight call 0.001%, BOE repo 4.00%. ‡Dec 12th. Sources: Commerzbank, Danske Bank, J.P. Morgan Chase, Royal Bank of Canada, OM Fixed Income Exchange, UBS Warburg, DRI-WEFA, Westpac, Thomson Financial Datastream. Rates cannot be construed as banks' offers.

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About sponsorship

The Economist commodity price index

Dec 20th 2001
From The Economist print edition

1995=100

	Dec 11th	Dec 17th*	% change on one month	% change on one year
Dollar index				
All items	65.5	65.3	– 0.3	–10.2
Food	68.1	68.0	– 0.3	– 4.9
Industrials				
All	62.0	61.6	– 0.5	–17.0
Nfa†	58.8	59.2	+ 3.2	–11.8
Metals	64.8	63.6	– 3.1	–20.7
Sterling index				
All items	72.0	70.6	– 3.1	– 9.8
Euro index				
All items	97.0	94.8	– 2.8	–11.6
Yen index				
All items	88.1	88.6	+ 3.7	+ 2.0
Gold				
$ per oz	272.95	278.00	+ 1.8	+ 3.0
West Texas Intermediate				
$ per barrel	17.98	19.20	+ 1.3	–33.1

* Provisional. † Non-food agriculturals.

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Stockmarkets

Dec 20th 2001
From The Economist print edition

Market indices

	Dec 18th	2001 high	2001 low	% change on one week	% change on record high	% change on Dec 31st 2000 in local currency	% change on Dec 31st 2000 in $ terms
Australia (All Ordinaries)	3,264.4	3,425.2	2,867.4	– 1.1	– 4.7	+ 3.5	– 3.9
Austria (ATX)	1,127.1	1,245.8	1,014.3	– 0.2	–35.1	+ 5.0	+ 0.9
Belgium (Bel 20)	2,623.6	3,030.4	2,322.6	+ 0.7	–28.7	–13.3	–16.7
Britain (FTSE 100)	5,151.1	6,334.5	4,433.7	– 0.2	–25.7	–17.2	–19.3
Canada (Toronto Composite)	7,586.5	9,348.4	6,513.1	+ 0.7	–33.4	–15.1	–19.0
Denmark (KBX)	214.9	294.3	197.8	– 1.5	–28.8	–18.8	–21.8
France (SBF 250)	2,899.7	3,820.2	2,335.3	– 1.8	–34.0	–23.1	–26.2
(CAC 40)	4,480.1	5,998.5	3,652.9	– 1.6	–35.3	–24.4	–27.4
Germany (Xetra DAX)	5,039.6	6,795.1	3,787.2	– 2.1	–37.5	–21.7	–24.8
Italy (BCI)	1,423.0	1,948.4	1,082.9	– 1.1	–34.8	–25.7	–28.7
Japan (Nikkei 225)	10,432.2	14,529.4	9,504.4	– 0.4	–73.2	–24.3	–32.4
(Topix)	992.6	1,441.0	863.4	– 2.2	–65.6	–22.7	–31.0
Netherlands (AEX)	489.0	642.3	396.2	– 1.1	–30.3	–23.3	–26.3
Spain (Madrid SE)	832.3	963.9	648.6	– 2.1	–27.4	– 5.5	– 9.3
Sweden (Affarsvarlden Gen)	228.4	293.1	177.5	– 2.8	–42.9	–17.8	–26.0
Switzerland (Swiss Market)	6,267.7	8,135.4	5,110.2	– 1.0	–25.5	–23.0	–23.6
United States (DJIA)	9,998.4	11,337.9	8,235.8	+ 1.1	–14.7	– 7.3	– 7.3
(S&P 500)	1,142.9	1,373.7	965.8	+ 0.5	–25.2	–13.4	–13.4
(Nasdaq Comp)	2,004.8	2,859.2	1,423.2	+ 0.1	–60.3	–18.9	–18.9
Europe (FTSE Eurotop 300)*	1,228.3	1,545.5	998.9	– 1.1	–28.0	–19.9	–23.1
Euro area (FTSE Ebloc 100)*	1,079.4	1,404.1	843.6	– 1.6	–30.4	–22.5	–25.5
World (MSCI)†	995.9	1,249.2	856.6	+ 0.2	–31.3	na	–18.4
World bond market (Salomon)‡	445.2	461.7	420.6	+ 0.3	– 3.2	na	+ 0.3

*In euro terms. †Morgan Stanley Capital International index includes individual markets listed above plus eight others, in dollar terms.
‡Schroder Salomon Smith Barney World Government Bond Index, total return, in dollar terms.

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Trade, exchange rates and budgets

Dec 20th 2001
From The Economist print edition

	Trade balance*, $bn latest 12 months	Current account $bn latest 12 mths	Current account The Economist poll % of GDP, forecast 2001	Current account The Economist poll % of GDP, forecast 2002	Exchange rate trade-weighted† Dec 18th	Exchange rate trade-weighted† year ago	Currency units per $ Dec 18th	Currency units per $ year ago	Currency units per £	Currency units per euro	Currency units per ¥100	Budget balance % of GDP 2001‡
Australia	+ 2.1 Oct	− 8.5 Q3	− 2.5	− 3.1	72.9	73.6	1.94	1.84	2.82	1.75	1.51	0.1
Austria	− 4.6 Sep	− 4.3 Sep	− 2.6	− 2.4	100.4	99.6	15.3	15.4	22.2	13.8	11.9	nil
Belgium	+ 11.0 Oct	+ 8.9 Jun	+ 4.0	+ 4.2	99.2	98.2	44.7	45.3	65.2	40.3	35.0	nil
Britain	− 47.1 Sep	− 19.2 Q2	− 1.7	− 2.2	106.9	107.0	0.69	0.68	–	0.62	0.54	1.1
Canada	+ 44.4 Sep	+ 23.9 Q3	+ 2.9	+ 1.9	76.5	78.5	1.57	1.52	2.29	1.42	1.23	2.8
Denmark	+ 7.4 Oct	+ 4.9 Oct	+ 2.2	+ 1.8	102.7	100.5	8.25	8.37	12.0	7.44	6.45	2.0
France	+ 0.9 Oct	+ 22.8 Oct	+ 1.4	+ 1.4	101.8	100.8	7.28	7.36	10.6	6.56	5.69	-1.5
Germany	+ 69.4 Oct	− 6.8 Oct	− 0.7	− 0.4	98.9	97.5	2.17	2.19	3.16	1.96	1.70	-2.5
Italy	+ 4.9 Oct	− 4.6 Sep	− 0.2	nil	72.6	71.9	2,148	2,173	3,129	1,936	1,679	-1.4
Japan	+ 74.9 Oct	+ 89.2 Oct	+ 2.7	+ 1.9	131.3	149.6	128	112	186	115	–	-6.4
Netherlands	+ 18.3 Sep	+ 11.1 Q3	+ 3.9	+ 4.0	98.1	97.0	2.44	2.47	3.56	2.20	1.91	1.1
Spain	− 38.4 Sep	− 15.4 Aug	− 2.5	− 2.4	74.3	73.7	185	187	269	166	144	nil
Sweden	+ 12.6 Oct	+ 5.8 Oct	+ 2.2	+ 2.1	74.1	79.6	10.48	9.77	15.3	9.45	8.20	3.8
Switzerland	nil Oct	+ 27.9 Q2	+10.6	+11.0	112.4	108.3	1.63	1.69	2.38	1.47	1.28	na
United States	−444.5 Sep	−430.7 Q3	− 4.1	− 3.9	120.4	115.1	–	–	1.46	0.90	0.78	0.6
Euro area	+ 18.8 Sep	− 35.9 Sep	− 0.3	− 0.2	79.3	77.8	1.11	1.12	1.62	–	0.87	-1.2
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*											
Finland	+ 13.0 Oct	+ 8.4 Oct	na	na	78.7	76.9	6.59	6.67	9.60	5.94	5.15	3.7
Greece	− 7.3 Sep	− 7.3 Jun	na	na	57.6	57.0	378	382	551	341	296	0.2
Iceland	− 0.2 Oct	− 0.7 Q3	na	na	na	na	101	86.5	147	91.1	79.0	-0.2
Ireland	+ 31.4 Sep	− 1.5 Q2	na	na	87.5	86.2	0.87	0.88	1.27	0.78	0.68	3.2
Luxembourg	− 2.8 Sep	+ 1.2 Q2	na	na	99.2	98.2	44.7	45.3	65.1	40.3	34.9	5.3
New Zealand	+ 0.3 Oct	− 1.9 Q2	na	na	80.2	78.9	2.40	2.33	3.50	2.16	1.88	1.3
Norway	+ 25.8 Nov	+ 26.1 Sep	na	na	96.5	92.8	8.86	9.11	12.9	7.99	6.93	14.3
Portugal	− 12.9 Sep	− 10.5 Sep	na	na	89.5	88.7	222	225	323	200	174	-1.7

*Merchandise. Australia, Britain, France, Canada, Japan and United States imports fob, exports fob. All others cif/fob. †1990=100, Bank of England. ‡OECD estimate.

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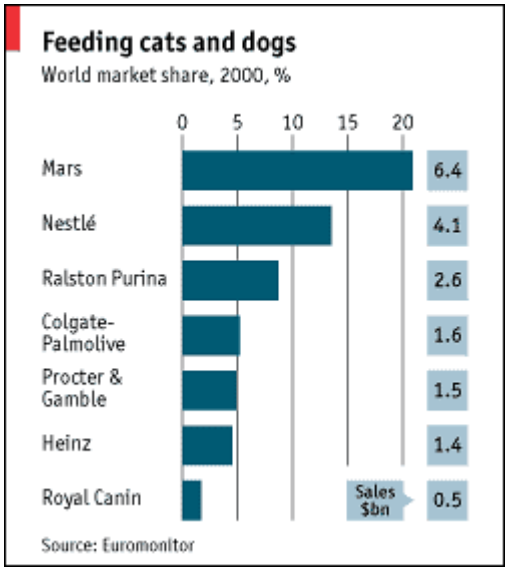
Feeding cats and dogs

Dec 20th 2001
From The Economist print edition

The market for pet food continues to grow, thanks to more pet ownership and greater use of premium foods. The top seven firms account for 60% of worldwide dog- and cat-food sales.



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Overview

Dec 20th 2001
From The Economist print edition

Russia's economy slowed slightly. GDP grew by 4.9% in the year to the third quarter, down modestly from its 5.3% growth in the year to the second quarter.

Thailand's economy is growing, but only weakly. GDP rose by 1.5% in the year to the third quarter, its lowest since early 1999.

South Africa's stockmarket soared to a new high even though the rand continued to languish. Companies with revenues in dollars and costs in rand have done well, driving shares up by 26% this year. Consumer-price inflation rose to 4.3% in November.

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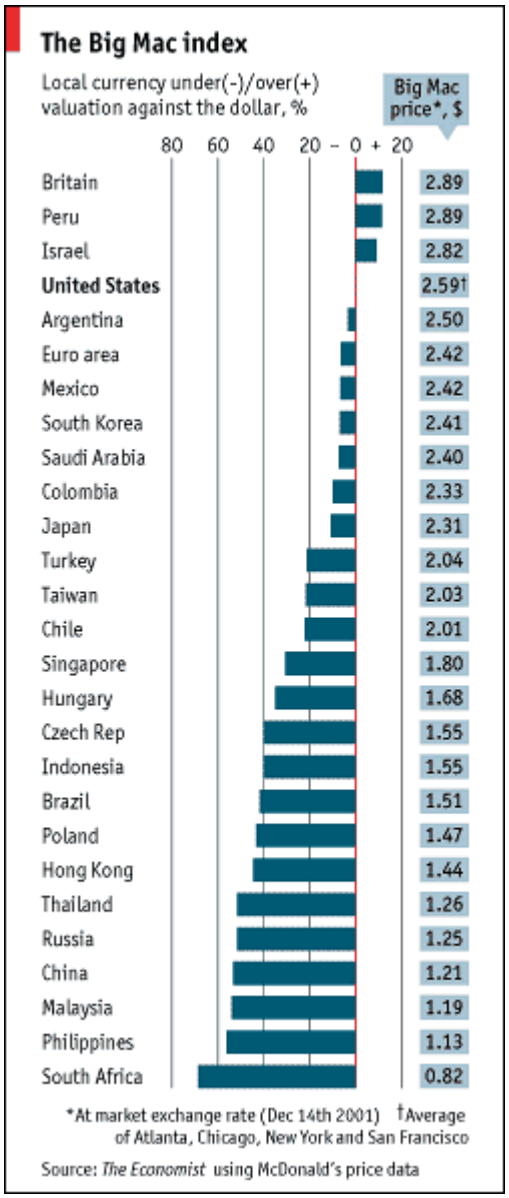
The Big Mac index

Dec 20th 2001
From The Economist print edition

The Economist's Big Mac index is based on the theory of “purchasing-power parity”. Under PPP, exchange rates ought to adjust to equalise the price of a basket of goods and services across countries. Our basket is the Big Mac. Dividing the American price of a Big Mac, $2.59, by the British price, £1.99, implies a PPP exchange rate of $1.30. The market rate is $1.45, making sterling 12% overvalued. By this measure, the South African rand is undervalued by 68%.



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Economy

Dec 20th 2001
From The Economist print edition

	% change on year earlier						Latest 12 months, $bn				Foreign reserves* $bn, latest	
	GDP		Industrial production		Consumer prices		Trade balance		Current account			
China	+ 7.0	Q3	+ 7.9	Nov	– 0.3	Nov	+20.9	Nov	+20.5	2000	199.3	Sep
Hong Kong	– 0.3	Q3	– 0.1	Q2	– 1.2	Oct	–12.1	Oct	+ 8.3	Q2	112.3	Nov
India	+ 4.4	Q2	+ 1.9	Oct	+ 4.2	Oct	– 6.2	Oct	– 0.9	Q2	44.0	Nov
Indonesia	+ 3.5	Q3	+ 3.2	Q2	+12.9	Nov	+25.2	Oct	+ 4.0	Q3	28.0	Nov
Malaysia	– 1.3	Q3	– 9.0	Oct	+ 1.5	Nov	+15.0	Oct	+ 7.5	Q2	25.4	Sep
Philippines	+ 2.9	Q3	– 1.1	Sep	+ 4.4	Nov	+ 3.4	Oct	+ 5.1	Aug	12.3	Sep
Singapore	– 5.6	Q3	–21.4	Oct	+ 0.2	Oct	+ 4.2	Oct	+22.1	Q3	76.8	Nov
South Korea	+ 1.8	Q3	– 1.3	Oct	+ 3.4	Nov	+10.8	Nov	+10.3	Oct	100.4	Oct
Taiwan	– 4.2	Q3	– 6.7	Oct	– 1.1	Nov	+15.6	Nov	+16.2	Q3	116.2	Oct
Thailand	+ 1.5	Q3	+ 1.8	Oct	+ 1.0	Nov	+ 2.6	Oct	+ 6.4	Oct	32.4	Oct
Argentina	– 0.5	Q2	– 7.6	Oct	– 1.6	Nov	+ 4.9	Oct	– 8.4	Q2	18.1	Oct
Brazil	+ 0.3	Q3	– 3.4	Oct	+ 9.2	Nov	+ 1.6	Nov	–25.4	Oct	37.5	Oct
Chile	+ 2.6	Q3	+ 4.9	Oct	+ 3.1	Nov	+ 1.6	Nov	– 1.7	Q3	14.3	Oct
Colombia	+ 1.0	Q3	– 0.8	Sep	+ 7.8	Nov	+ 0.8	Sep	– 0.7	Q2	10.0	Oct
Mexico	– 1.6	Q3	– 4.3	Oct	+ 5.4	Nov	– 9.5	Oct	–16.6	Q3	43.4	Oct
Peru	+ 2.2	Oct	+ 0.7	Sep	+ 0.1	Nov	– 0.3	Oct	– 1.4	Q3	8.7	Sep
Venezuela	+ 2.8	Q3	+ 3.2	Aug	+12.7	Nov	+13.7	Q3	+ 8.7	Q3	9.3	Oct
Egypt	+ 6.5	2000†	+ 9.4	2000†	+ 2.1	Sep	– 8.8	Jul	nil	Q2	13.5	Aug
Israel	– 2.7	Q3	–15.4	Sep	+ 1.4	Nov	– 6.9	Nov	– 1.4	Q2	23.0	Nov
South Africa	+ 0.1	Q3	+ 6.5	Oct	+ 4.3	Nov	+ 4.1	Oct	+ 0.3	Q3	6.1	Oct
Turkey	– 7.1	Q3	–13.5	Oct	+67.3	Nov	–15.8	Sep	– 0.4	Sep	19.0	Oct
Czech Republic	+ 3.2	Q3	+ 4.1	Oct	+ 4.2	Nov	– 3.2	Oct	– 2.6	Q3	14.3	Nov
Hungary	+ 3.7	Q3	+ 2.4	Oct	+ 7.1	Nov	– 2.0	Oct	– 1.0	Oct	11.7	Oct
Poland	+ 0.8	Q3	– 0.8	Nov	+ 3.6	Nov	–11.7	Oct	– 5.7	Oct	28.0	Oct
Russia	+ 4.9	Q3	+ 4.7	Nov	+18.8	Nov	+54.8	Oct	+44.6	Q2	33.3	Nov
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*											
Pakistan	+ 3.3	2001†	+ 5.0	Jul	+ 2.9	Oct	– 1.2	Sep	+ 0.3	2001†	2.4	Oct
Saudi Arabia	+ 4.5	2000§	na		– 0.5	Sep	+50.9	2000	+15.6	2000	17.1	Oct

*Excluding gold, except Singapore; IMF definition. †Year ending June. § Economist Intelligence Unit estimate.

Text refers only to the first 25 countries listed

Sources: National statistics offices, central banks and stock exchanges; Thomson Financial Datastream; Economist Intelligence Unit; Reuters; Warburg Dillon Read; J.P Morgan Chase; Hong Kong Monetary Authority; Centre for Monitoring Indian Economy; FIEL; EFG-Hermes; Bank Leumi Le-Israel; Standard Bank Group; Garanti Bank; Deutsche Bank; *Russian Economic Trends*.

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Financial markets

Dec 20th 2001
From The Economist print edition

	Currency units			Interest rates	Stockmarkets	% change on		
	per $		per £	short-term	Dec 18th		Dec 31st 2000	
	Dec 18th	year ago	Dec 18th	% p.a.		one week	in local currency	in $ terms
China	8.28	8.28	12.1	na	1,756.4	−2.4	−19.9	−19.9
Hong Kong	7.80	7.80	11.4	1.88	11,486.9	−1.8	−23.9	−23.9
India	47.8	46.8	69.7	6.63	3,335.9	−2.4	−16.0	−18.0
Indonesia	10,155	9,470	14,797	17.99	374.7	+0.9	−10.0	−14.3
Malaysia	3.80	3.80	5.54	3.30	664.1	−0.6	−2.3	−2.3
Philippines	51.6	50.0	75.1	17.63	1,124.4	+0.7	−24.8	−27.0
Singapore	1.84	1.74	2.68	1.06	1,583.6	−1.2	−17.8	−22.4
South Korea	1,287	1,192	1,875	4.86	643.8	−3.9	+27.6	+25.4
Taiwan	34.7	33.1	50.5	2.60	5,329.2	+1.0	+12.3	+7.2
Thailand	43.8	43.5	63.9	2.75	292.9	−0.7	+8.8	+7.7
Argentina	1.00	1.00	1.46	15.19	253.4	+5.9	−39.2	−39.3
Brazil	2.35	1.96	3.42	19.05	13,397.4	+0.4	−14.1	−28.6
Chile	664	575	968	5.29*	5,439.1	+0.0	+11.7	−3.5
Colombia	2,305	2,189	3,359	11.48	964.5	+2.1	na	na
Mexico	9.11	9.46	13.3	6.18	6,269.0	+1.9	+10.9	+17.0
Peru	3.44	3.52	5.01	2.94	1,171.2	−0.4	−3.1	−0.5
Venezuela	752	698	1,096	21.00	6,582.2	+4.1	−3.1	−9.9
Egypt	4.54	3.82	6.61	7.21	5,342.1**	+0.8	−30.3	−40.2
Israel	4.24	4.09	6.17	3.85	396.0	−1.7	−19.9	−23.6
South Africa	12.2	7.76	17.7	9.62	10,495.9	+6.5	+26.1	−21.7
Turkey	1,445,500	683,470	2,106,238	57.00	12,761.9††	+1.7	+35.2	−37.3
Czech Republic	35.4	39.6	51.6	4.66	384.3	−2.2	−19.7	−14.7
Hungary	272	303	396	9.75	7,212.6	−0.1	−8.1	−4.5
Poland	3.97	4.39	5.78	12.71	13,918.3	−0.2	−22.0	−18.8
Russia	30.3	28.0	44.2	25.00	237.7†	−1.8	+75.6	+65.9
EMF (MSCI)‡	1.00	1.00	1.46	na	308.5	−1.2	na	−7.6
EMBI+§	1.00	1.00	1.46	na	200.4	−0.1	na	−0.7

*Inflation adjusted. **Dec 13th. ††Dec 14th. †In $ terms. ‡Emerging Markets Free. §J.P. Morgan Chase's Emerging Markets Bond Index Plus.

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